Construction Methods AND EQUIPMENT

A M c G R A W - HILL PUBLICATION

Lift-Slab Techniques Borrowed to Raise Structure...104

Double Walls Reduce Water Pressure On Cofferdams...106



Three Casings Protect Concrete Caissons . . . Above and Page 90

COMPLETE CONTENTS, PAGE 4

THEY PLANNED ON YELLOW STRAND TO HOLD DOWN COSTS

while moving steel and concrete on \$137 million job





65-ton American Cranes in operation at Keystone Dam site near Sand Springs, Okla.

Hyde Construction Company Wants Dependability... Picks Yellow Strand for Keystone Dam Project

Dependable in strength and durability-that's Yellow Strand wire rope. That's why Yellow Strand is an important part of the profit picture on any construction job. You get more working hours for your money, and that means profit any way you look at it. Hyde Construction Company, Jackson, Mississippi, tried Yellow Strand and reported its quality unsurpassed. Why not put Yellow Strand to your profit test on your next job? Call your Yellow Strand distributor or representative for service-for satisfaction. It pays!

HOLLOW STUDIO

BRODERICK & BASCOM ROPE CO.

ST. LOUIS . PEORIA . HOUSTON . SEATTLE



B.F.Goodrich takes the sting out of steam hose

Makes steam-handling safe with a hose that can't explode

THE job this man's doing used to be plenty dangerous. He's using scalding steam to cure concrete locks on a big construction project in southern Ohio. Heat used to weaken steam hose. Sometimes it burst with explosive force, spraying scalding steam, seriously injuring workmen.

To make a hose that would be safe, B.F.Goodrich engineers developed a new kind of heat-resistant rubber which they used inside the hose and between plies. Then they built layers of fine braided wire for reinforcement right into the hose.

The result is an improved hose—called Burstproof—that makes steam-handling safe. Even when this hose finally wears out after years of service, the steam will leak out, but the hose won't explode!

Engineers at the Captain Anthony Meldahl Locks and Dam project, Chilo, Ohio, report "no breakdown whatsoever" with the 3000 feet of Burstproof steam hose they're using. This despite fairly constant use, heat and pressure, and the abuse it takes as it's dragged over sharp concrete and rough, rocky ground.

Circle 1 on Reader Service Card

Your B.F.Goodrich distributor has exact specifications for the B.F.Goodrich steam hose described here. And, as a factory-trained specialist in rubber products, he can answer your questions about the many products B.F.Goodrich Industrial Products Company, Dept. M-995, Akron 18, Ohio.



Battered Walls



Symons Steel-Ply Forms Solve Complicated Wall Problem 952 Ties Required . . . 186 Different Sizes

Alvey & Eldridge Construction Company to save time in pouring a battered pany to save time in pouring a battered retaining wall 202 feet long in Kansas City, used Symons Steel-Ply Forms. The contractor rented 2,400 square feet of forms to pour the 4,800 square feet of forming. This amounted to 204 cubic yards of concrete.

The Symons system particularly showed its versatility on this complicated wall with the use of Symons Ties. 952 ties were required. And it was necessary to furnish 186 different sizes.



Completed section of battered wall. Note the clean, smooth finish.

Upon completion of the job which Upon completion of the job which was done for Skelly Oil Company, Roy Eldridge, president of the firm was so well pleased with the performance of the Symons Steel-Ply Forms that he purchased the 2,400 square feet. You too may want to try Symons Steel-Ply Forms on a rental purchase plan. Write for details. One of our sales engineers will be happy to call at your request.



4255 Diversey Ave., Dept. E-1, Chicago 39, III. Warehouses Thruout the U.S.A.

MORE SAVINGS FROM SYMONS

Circle 2 on Reader Service Card

Construction Methods AND EQUIPMENT

MAY. 1961

| Publisher | Robert F. Boger |
|---|---|
| Editor | Henry T. Perez |
| Managing Editor | |
| Associate Editors | San Francisco: L. L. Wise Washington: V. B. Smith |
| Assistant Editors | William G. Mooney John Silinsh Eugene J. Schreiber |
| Presentation Editor | Joseph J. Fries Assistant: Kaaren Lewis |
| Editorial Secretaries | Rosemary McKenna Helen Boskus |
| Business News: | Manager: Elsie Eaves Editor: James H. Webber |
| McGraw-Hill World NewsMana | Director: John Wilhelm ging Editor: Margaret Ralston |
| Domestic News Bureaus: ATLANTA: B. E. Barnes • CHIC CLEVELAND. Arthur Zimmerm DETROIT: Donald MacDonald • L SAN FRANCISCO: Jenness Keene • SEATTLE: Ray | AGO: Steward W. Ramsey nan - DALLAS: Marvin Reid OS ANGELES: Kemp Anderson WASHINGTON: G. B. Bryant, Jr. |
| Foreign News Bureaus: LONDON: John Shinn • PARIS: Rob MEXICO CITY: Peter Weaver CARACAS: John Pearson • 1 TOKYO: Sol Sanders: RIO DE | BEIRUT: O. M. Marashian MOSCOW: Ernest Conine |

MEMBER



NUMBER 5

VOLUME 43

CONSTRUCTION METHODS AND EQUIPMENT, May 1961. Established in 1919. Published monthly by McGraw-Hill Publishing Co., Inc., James H. McGraw (1860-1948), Founder. Available only by paid subscription. Subscriptions are selicited only from persons engaged in construction or in supplying the construction industry. Position and company connection must be indicated on subscription enders ferwarded to address shown in box below. Publisher reserves the right to refuse non-qualified subscriptions.

United States subscription rate for individuals in the field of publication \$2 per year, single copies \$1; foreign \$15 per year, payable in advance.

Editerial, Executive, Circulation, and Advertising effices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N.Y. Telephone: Longacre 4-3000. Teletype: TWX N.Y. 1-1636. Cable Address: McGRAWHILL, New York.

Printed at Garden City, L.I., N.Y.; second-class mail postage paid at New York, N.Y., and at additional mailing offices. Title & registered at U. S. Patent Office. © Copyrighted 1981, McGraw-Hill Publishing Company, inc. Quotations on bulk reprints of articles available on request. All rights reserved, including the right to reproduce the contents of this publication, either in whole or in part.

Officers of the Publications Division:
Nelson L. Sond, President; Shelton Fisher, Wallace F. Traendly, Senior Vice Presidents
John R. Callaham, Vice President and Editorial Director; Joseph H. Allen, Vice President
and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coardinator.

Officers of the Corporation:

Omficers of the Corporation:

Donald C. McGraw, President; Joseph A. Gerardi, Hugh J. Keily, Harry L. Waddell, Executive Vice Presidents; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary, UNCONDITIONAL GUARANTEE—Our primary aim is to provide subscribers with a useful and valuable publication. Your comments and suggestions for improvement are encouraged and will be most welcome. The publisher, upon written request, agrees to refund the part of the subscription price applying to the remaining unfilled portion of the subscription—if editorial service is unsatisfactory.

SUBSCRIPTIONS: Send subscription correspondence and change of address to Fulfillment Manager, CONSTRUCTION METHODS AND EQUIPMENT, 330 W. 42nd St., New York 36, N.Y. Subscribers should notify publisher promptly of any analege of address, giving old as well as new address, and including postal zone if any. If possible, enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

Postmaster: Please send Form 3579 to Fulfillment Manager, CONSTRUCTION METHODS AND EQUIPMENT, 330 W. 42nd St., N.Y. 36, N.Y.

GRADALL for a wider range of work

There are good reasons why Gradall is the busiest machine on every job...powerful hydraulic down pressure and prying action for tough digging...smooth positive control of boom and swing for accurate spotting of loads...full line of quick change attachments...moves quickly from job to job.

See your Warner & Swasey dealer for facts and figures on the Gradali model that fits your specific needs.

WARNER & SWASEY

Gradall Hopto

world's largest line of hydraulic construction and excavating equipment . . . dealers in all principal cities.

Circle 3 on Reader Service Card

Construction Methods



ON THE COVER

A Case Foundation Co. crew at Chicago's Marina City apartment project prepares to pour ready-mix concrete into a 110-ft-deep caisson shaft that is protected by three separate casings. At the bottom of the shaft is a 60-ft core barrel (others are shown on ground) that was keyed into limestone by the contractor-built caisson borer shown in background. It is mounted on a Bucyrus-Erie 51B undercarriage. The shaft also has two casings at the top to keep out saturated fill. The two Manitowoc cranes placed all casings. Story starts on p. 90

DEPARTMENTS

| Washington News 11 |
|----------------------------------|
| Job Talk 25 |
| Machinery Market Trends 34 |
| Construction Business 45 |
| Picture of the Month |
| Construction News in Pictures 65 |
| Construction 'Round the World 74 |
| Editorial 89 |
| Sales and Service |
| Construction Equipment News 166 |
| New Product Briefs |
| New Publications |
| Advertisers' Literature215 |
| Maintenance Shop |
| Methods Memo |
| Reader Service Card225 |

NEXT MONTH

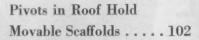
Two Corps of Engineers dam projects near Tulsa, Okla., are similar in size, cost, and design. But methods for producing aggregates for the concrete spillways differ. At Keystone Dam coarse aggregates are supplied by a commercial producer and sand is reclaimed from the Arkansas River. At Eufaula Dam, coarse aggregates are produced in a nearby quarry and sand is reclaimed from the spillway excavation.

Photo Credits: 27 bottom, Bureau of Reclamation; 65 lower left, 74 left, Em-Kayan; 74 lower left, George Allen; cover, 90 left, 91, James B. Lehman; 200, Harper Leiper.

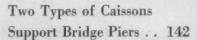
Pay Dirt in This Issue

Liner Plates Seal Off Water in Missile Silos . . . 94

Besides providing structural support, liner plates double as water barriers at the bottoms of 160-ftdeep missile silos. They are caulked with a special rubber compound.

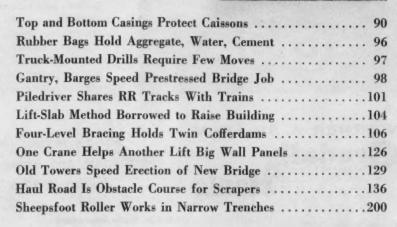


Work platforms that provide access to the interior of the domed roof over Pittsburgh's new auditorium rest on curved scaffolds that rotate about pivots and ride on a rail.



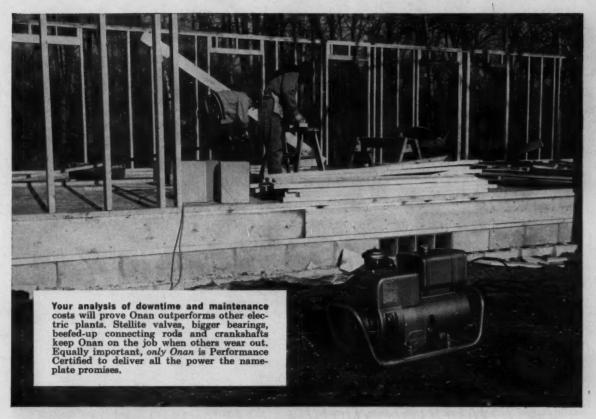
An open steel caisson for a bridge pier in the middle of the Arkansas River was floated into place, and a concrete caisson for a pier at the bank was sunk through a sand island.











Only Onan is certified to give you all the power promised by its nameplate

It's a fact that many electric plants on the market today do not deliver the output promised by their nameplate rating.

Every Onan plant is given a rugged workout under full load before it is shipped—your assurance that the Onan you buy is ready for hard work the day you get it.

But this isn't enough. Independent laboratory inspectors pull surprise inspections to double-check our tests and testing methods. They pull a plant off the line, run it, stop it, load it, overload it, check and recheck. Their torture test gives positive proof of Onan's quality. End result: Onan's exclusive Per-

formance Certification . . . your assurance of getting every watt of power you pay for.

So when you're tempted by an electric plant "bargain," make sure its nameplate rating is not "inflated." Be sure you're getting full measure for your money. Remember, the electric plant that shortchanges you in power output is no bargain at any price! Only Onan is Performance Certified to deliver everything the nameplate promises.

See Onan electric plants soon. Compare before you buy. You'll find your Onan distributor listed in the Yellow Pages. Call him or write direct.





ONAN Division, Studebaker-Packard Corporation, 2561 University Ave. S. E., Minneapolis 14, Minn.

Circle 5 on Reader Service Card



10 ton pneumatic to 42 ton sheepsfoot

BROS GOMPAGIORS ROLL ON GLARK AXLES

"Well-engineered and trouble-free," is the way A. O. Williamson, Manager of Bros' Road Machinery Division, describes Clark Axles. "And Clark," he continues, "because of its broad standard line (planetary, steering, trailer and bogie axles, 1500 to 180,000 lb carrying capacities), can readily give us the right axle for each of our many models. Delivery is always good . . . prices low!"

"At the present time," Mr. Williamson concludes, "we use mostly Clark planetary axles. They afford the same important benefits in our kind of relatively slow operating equipment as they do in truck cranes and similar mobile vehicles: far less strain on power trains, far greater axle life."

These same benefits probably can be applied to your vehicles. We'll be glad to show you first-hand. Write for catalog sheets on the type and size axles you need.

Besides axles, some of Bros' broad line of self-propelled compactors also contain Clark TransVerters: a transmission-clutch-torque converter package so smooth starting and shifting "the rollers don't scuff even the freshest-laid asphalt."

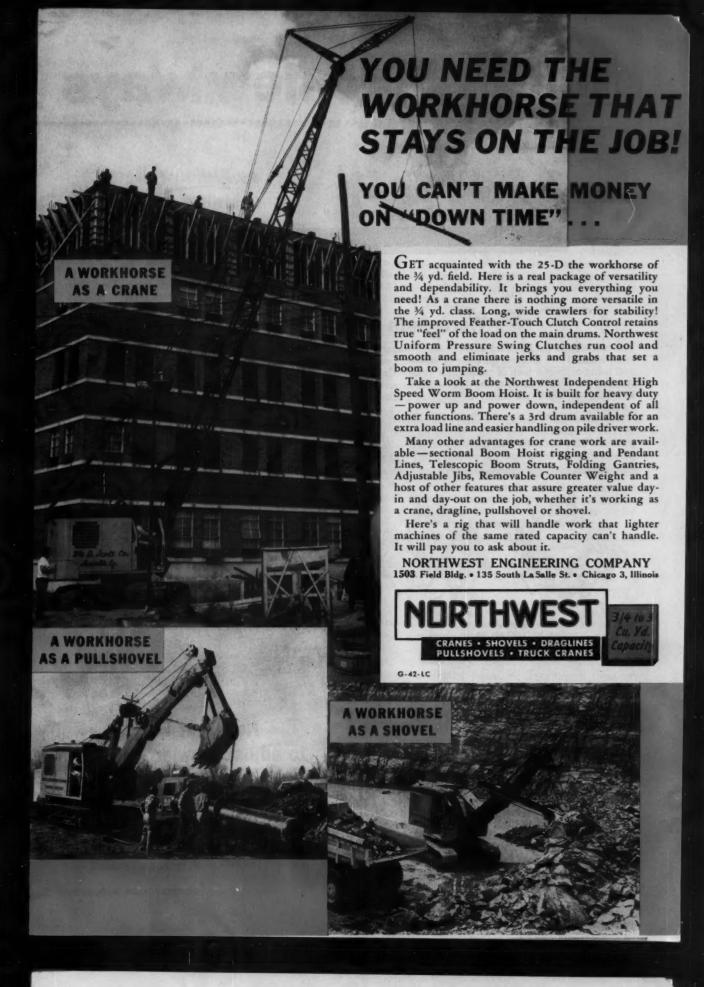


TransVerter is a trademark of

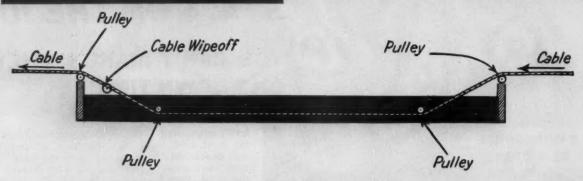
CLARK EQUIPMENT COMPANY

BUCHANAN 6, MICHIGAN

Circle 6 on Reader Service Card



LUBE LOGIC 5 new ways

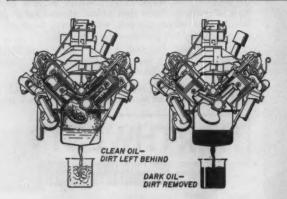


Warm bath restores wire rope

The best way to get lubricant inside a cable, where it's really needed, is to immerse the cable or wire rope every 500 hours or so in a bath of warmed-up Texaco Crater A lubricant. It pays off by giving you far longer service life than you would get simply by applying Crater A externally.

This warm-bath treatment requires a horizontal trough to hold the lubricant. The trough should be fitted with pulleys to keep the cable completely submerged while it's passing through. A burlap collar should be rigged to wipe off excess lubricant as the cable leaves the box. An immersion of about a minute will allow the lubricant to work well into the strands.

This process is *not* an alternative to other lubrication. You should continue to clean the cable and apply Crater A externally every 10 to 100 hours, depending on the type of work the cable is doing. Remember also to be very sparing with lubricants on cables that wind on clutch-equipped drums, and never lubricate cables that are dragged in dirt.



Dark engine oil... sign of a hard worker

Here's a motor-oil misconception that's still common enough to need discussion. Some folks think that the better an engine oil is, the more likely it is to come out as clean as it went in. The truth of the matter is just the other way around. A good detergent-dispersant oil holds onto dirt like an old friend. It keeps dust, soot and carbon in suspension, and carries it out of the engine when you drain the oil. Oil that looks clean when you drain it from the crankcase is a sign that these contaminants may still be inside the engine. Moral: oil that darkens in use is really doing its job.



No-sweat way to adjust crawler treads

Crawler treads are easier to adjust if you dab a little Texaco Threadtex on the adjusting screws. The Threadtex stays put through months of service, keeps the screws free-turning and corrosive-proof. Another good use for Threadtex is on track bolts, when you're making up track. A little dab of Threadtex on the bolts will save a lot of time and work in taking down track after it has been in service.

to trim downtime

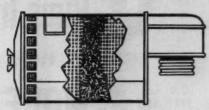
Key points on air filter maintenance

In a day's operation a typical engine inhales several thousand cubic feet of air, and on a construction project all that air is probably loaded with abrasive dirt and dust. Good air-filter maintenance is the only way to make sure your engine gets the air and *not* the dirt. Here are some maintenance tips that will keep your air filter working better through thick and thin.



Dry type air cleaners (the ones with the fluted paper element) should simply be shaken or tapped lightly to remove dirt, and reinstalled. Never clean dry-type elements with kerosine or diesel fuel.

Additional precautions: empty centrifugal precleaners when the glass container is half full; don't remove the oil cup when the engine is running.



If your filter is the wire gauze type, and you want to re-use the element, wash the gauze in kerosine or diesel fuel, shake it dry (don't blow it with compressed air) and re-oil it with SAE 40 or SAE 50 oil to coat the element.



Oil-bath type oir filters won't function properly if there's more than a half inch of sediment at the bottom of the oil reservoir. Check the sediment level by sticking a screw-driver down into the oil, and if you're anywhere near the half-inch level the bowl should be cleaned out and refilled. Also, inspect the filter every 5 to 50 hours to make sure the oil itself is at the right level. Every 500 hours the whole cleaner should be dismantled and cleaned, and refilled with new engine oil of the same grade used in the crankcase.

New Texaco movie can help boost your profits



This factual, down-to-earth presentation shows you how 1% of your total budget (the amount usually spent on lubricants) can minimize a major cause of equipment downtime.

SEE: How the biggest engineering job ever undertaken was 90% lubricated with only *four* different products.

SEE: How one contractor lubricated 21 different types of equipment with only seven products.

SEE: "A Plan for Profits"—Texaco's newest sound and color movie.

FOR AN EARLY SHOWING contact your Texaco Contractor Representative now.

TEXACO LUBRICATION ENGINEERS

Every month or so we'll bring you a batch of "sleepers"—little angles, so easy to overlook, where big savings in time and money can be made. But month in, month out, your local Texaco Man is your best source of money-saving lubrication ideas. Don't forget that "Lubrication is a major factor in cost control." Texaco Inc., 135 East 42nd Street, New York 17, N. Y.

TUNE IN: TEXACO HUNTLEY-BRINKLEY REPORT, MON. THROUGH FRI.-NBC-TV



Canada · Latin America · West Africa



What do Goodyear Earthmover Rims have that no others have?

A: MORE times FOUR

- L MORE rims on the job: More tons are hauled on—more earth-moving equipment rides on Goodyear rims than on any other kind. Result: You reap the benefits of the widest, soundest experience in rim design, manufacture and use.
- 2. MORE kinds of rims: Maximum rim performance stems from proper specification. Goodyear makes the only complete line of earthmover rims. Result: The choice that permits you to get exactly the right rim for the job.

What better reasons for choosing Goodyear as your rim supplier? Only these: The desire and ability to design and build any rim that may be needed for tomorrow's earth-moving equipment. No matter what your rim needs or plans, you'll find it pays to call on Goodyear. See your local rim distributor, or write: Goodyear, Metal Products Division, Akron 16, Ohio.

3 MORE rim engineering help:
Goodyear has more engineers designing and selling rims than any other company. And they know tires, too. Result: The help you need in choosing the right rim for top per-

formance-longer tire life.

4- MORE rim "firsts." The first true earthmover rim, the first 5° rim, the first tubeless rim—in fact, every major earthmover rim advance was made by Goodyear. Result: The very latest in rim design and manufacture at work, for you.



Lots of good things come from

GOODFYEAR

Circle 10 on Reader Service Card

Construction News From Washington

Washington, D.C. May, 1961

Construction Aid Goes to Depressed Areas

The new federal-aid program for depressed areas is expected to boost construction in 103 labor surplus areas throughout the country and in possibly another 500 rural counties, mostly in the South.

The federal program includes \$394 million in loans and grants (mostly loans) for building public works and plant facilities to attract new industry into chronic unemployment areas.

The breakdown: \$100 million in loans for urban areas to remodel old plants, develop industrial parks; \$100 million in loans for industrial development in rural areas; \$100 million in loans for public facilities; \$75 million in grants for communities that can't pay off loans; \$19 million for retaining workers and for other development plans.

To qualify, a community, or rural area, must have a local commission or non-profit organization to administer the program. Plans must be approved by the new Area Redevelopment Administrator in the Commerce Dept.

Unions Hassle Over Plant Maintenance

A battle is breaking out between craft and industrial unions over a new manufacturing industry trend: contracting outside for light construction and maintenance work.

The industrial unions—hard hit by unemployment—are fighting the trend toward hiring outside contractors (and their craft union membership) to handle internal construction and maintenance. Industry officials claim the trend is necessary for economy.

Watch for a ruling this summer by the U.S. Supreme Court on charges brought by the International Union of Electrical Workers (AFL-CIO) against General Electric's Appliance Park Div. at Louisville. Lined up with the IUE is the AFL-CIO's Industrial Union Dept.; against it is the AFL-CIO Building Trades Dept.

Corps Backs Off on Northwest Power Site

The Corps of Engineers has softened slightly in its final recommendation to Congress that the High Mountain Sheep hydro power project on the Snake River boundry between Idaho and Oregon be built in preference to the Nez Perce project.

Originally, the Corps called flatly for High Mountain Sheep because of the inherent migratory fish problems at Nez Perce. Now, the Corps points to "the logical method" of holding off on either project until 1964 to see if the Nez Perce fish problem can be solved, or if Northwest power needs require immediate construction of High Mountain Sheep.

In the Corps' final report, four dams, called for earlier in its preliminary report, have been dropped because of the U.S.-Canadian treaty to develop the Columbia River. The four projects deleted in the final report are Nine-Mile Prairie, Wenaha, Long Meadows and Enaville.

Canada Holds Up Columbia River Treaty

The proposed U.S.-Canadian treaty to develop the Columbia River—including three major dams in Canada—has been ratified by the U.S. Senate, and awaits final ratification by Canada. A dispute over power rates between Ottawa and British Columbia is holding up Canadian action.

The three Canadian dams would be Mica Creek, Duncan Lake and Arrow Lakes. Also, the U.S. would get Canadian authority to build Libby Dam, on the Kootenai River, Mont., to back water across the border.

Congress Will Boost Highway Program Funds

Prospects are good that Congress will go along with President Kennedy and vote the additional funds needed to keep the federal-aid highway program on schedule. Indications now are that nearly a half-billion dollars of extra funds will be made available to the states in July.

President Kennedy has asked Congress to provide \$9.7 billion in new revenue. This money is needed if the 41,000-mi network of Interstate highways is to be completed on schedule by 1972 and if federal contributions on feeder and farm-to-market highways are to keep pace. Without the extra money, the Interstate program would have to be stretched out by 5 yr.

Although Congress may not go along with the specific tax proposals made by Kennedy for raising the new revenue, the administration will get close to what it wants in total funds—thus averting either a major stretchout or cutback in highway building. This would make available an extra \$400 million in July for apportionment to the states for work on the Interstate System in fiscal 1963.

The present law provides for a maximum annual authorization level of \$2.2 billion annually through 1967, with an even lower ceiling in 1969. The new schedule would gradually step up authorizations to a peak of \$3 billion for 1968, 1969 and 1970, followed by a final 1971 installment of \$2.9 billion.

In addition, funds for other federal roads, now fixed at an annual level of \$925 million, would be increased by \$25 million every 2 yr beginning in 1964 until the \$1 billion-per-yr level is reached and maintained.

Forty state highway departments report that they can finance their share of the Interstate program at a level to complete it by 1972. The remainder indicate they can handle the program at the level required for the next 2 yr, and say they anticipate no insurmountable problems thereafter.

Demand for DYNAPOWER HYDROSTATIC TRANSMISSION SYSTEMS

will change the shape and improve the performance of future off-road vehicles!

The word is out. DYNAPOWER is available. End-users even now are demanding operational benefits that only DYNAPOWER can provide.

Number one on everyone's list is high torque at low rpm. Number two is Power-Absorption Braking which eliminates use of service brakes. Number three is infinitely variable speed in either direction without clutches or gear changers. Number four is faster, smoother response. Number five is simplified maintenance due to elimination of the conventional drive train.

Years ahead of its time, DYNAPOWER soon will make all conventionally equipped off-road vehicles years behind. Be sure you know all about DYNAPOWER before you freeze your new designs. Write today.

WATERTOWN DIVISION THE NEW YORK AIR BRAKE COMPANY

155 STARBUCK AVENUE . WATERTOWN, N. Y.

This DYNAPOWER Hydrostatic Transmission System uses

a separate axial piston hydraulic pump and motor to produce torque as required up to 270 lb./ft. The variable pump provides an infinitely variable speed ratio and displaces a maximum of 4.8 cu. in./rev. The transmission is rated at a normal 60 HP but handles peak requirements up to 90 HP.

No matter how big the job...

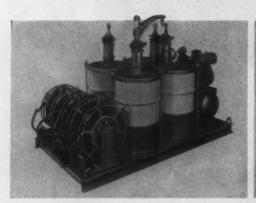
Alemite Portable Service keeps it moving on time at less

The big spreads stay on the job when an Alemite Portable Service Station is there. Dozers, buckets, scrapers, shovels, trucks... every piece of equipment is serviced at the site—not miles away. Downtime is reduced, more equipment hours are applied to the job, costs go down... and profits go up!

Your choice of Alemite's fine power lubrication equipment is arranged to meet the specific need of your particular spread—with the dependability you've come to respect.

Alemite Portable Service Stations can include an air compressor, high and low pressure Alemite pumps, as many as 8 service

Unlimited variations of top quality equipment can be skid or truck-mounted to provide faster "back to work" facilities in heavy-duty operations. Nationwide availability and service.









Circle 15 on Reader Service Card

GET REAL PRODUCTIVITY



When you get 10 years' service from a Diesel, and spend only \$27.00 for repairs, you're dollars and dollars ahead of the game.

And that has been the exact experience of Corpus Christi's A. E. Hinman Construction Company.

They put a 3-71 GM Diesel in a Koehring 304 ten years ago... added up their engine repair bills recently and discovered the only expense they'd

had in all that time was \$27 for injector repairs.

And in those ten years, the "Jimmy" Diesel has averaged about 2,000 hours per year—worked on all kinds of general construction jobs throughout South Texas.

President A. E. Hinman says, "We bought the GM Diesel because other operators had told us 'Jimmys' were trouble-free and very economical to operate." Now, with a decade of lowcost operation behind him, he's got firsthand proof.

You'll get more productivity—and profits—from your equipment with GM Diesels in your equipment. Wide parts interchangeability, for instance, will save you big money. Proof? Call your GM Diesel distributor—he's in the Yellow Pages under "Engines, Diesel"—or mail the postcard.

GM DIESEL ALL-PURPOSE



GASOLINE **OPERATING** SAVINGS COMPUTER

GENERAL MOTORS

COMPUTER ING YEARLY FAIL COSTS DEINE AND DESIL BROWN





Please send me my GM Diesel Operating Savings Computer:

NAME

COMPANY

ADDRESS

CITY.



BUSINESS REPLY CARD

Section 34.9 PL & R, Detroit, Mich.

PAID

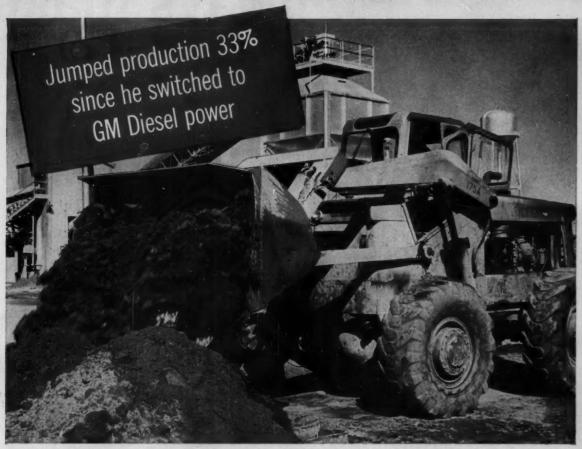
5¢ POSTAGE WILL BE PAID BY

13400 West Outer Drive Detroit 28, Michigan

GM DIESEL

Dept. CME-3

GET A GM DIESEL ENGINE



33% more ore moved per shift-500 pounds extra per bucket-faster acceleration-better stop-and-go performance.

That's what Homestake and New Mexico Partners of Grants, New Mexico, got when they repowered their 175A Michigan loader with a 4-71 "Jimmy" Diesel.

Operating at 6,500 feet-high up where you can really see the difference in Diesels-the "Jimmy"-powered Michigan now moves 2,000 tons of uranium ore every 8-hour shift-lifts 4 tons per bucket bite.

And Frank Hooper-foreman in charge of automotive equipment for the company-says the GM Diesel has also made the Michigan "a steadier-running, smoother-operating machine."

It's not hard to tell the difference in

Diesels-just check the work they put out. You'll see GM Diesels outwork competition time after time, regardless of altitude. Let your GM Diesel distributor show you how much extra profit you'll make from that extra productivity. Call him, he's in the Yellow Pages under "Engines, Diesel" -or mail the postcard.



In Canada: GENERAL MOTORS DIESEL LIMITED, London, Onfario

POWER LINE

Circle 19 on Reader Service Card

Sets the

standard of Diesel productivity

MAY, 1961

Circle 20 on Reader Service Card

Highways make headway with B.F. Goodrich



FOUR-LANE WHEATLAND-GLENDO FREEWAY takes shape as fleet of Woodward Construction Co. scrapers on B.F.Goodrich Rock Service tires move 960,000 cubic yards of rock and dirt. Note the BFG Servicemobile. It's fully equipped with the latest power tools to handle tires—and trained BFG tire men are always on call to make fast, expert tire repairs. Service like this can make the difference between profit and loss on a job.

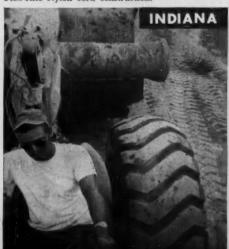


BUILDING U.S. HIGHWAY 59 calls for a fleet of earthmovers to wind over sandy soil hauling 30-ton loads of fill dirt. Because flotation and traction are "musts," Williams Bros. Construction Co. chooses B.F. Goodrich Super Traction tires. Note the wide, flat tread—the sharp, deep cleats. The BFG Flex-Rite Nylon cord construction has twice the strength of ordinary materials, resists heat blowouts and flex breaks. It's not unusual for BFG tires to be retreaded again and again.

DOLLAR-SAVING B.F.GOODRICH TIRES AND SERVICE SPEED HIGHWAY CONSTRUCTION ALL AROUND THE COUNTRY



SCRAPER HAULS 30 TONS OF DIRT, works 60 hours a week to speed construction of Interstate Highways 65 and 465. BFG Rock Service tires give 4,000 hours' service, Contracting-Material Coreports, can still be retreaded. One reason: B.F.Goodrich Flex-Rite Nylon cord construction.



THE NEXT TIME your bid gets the nod, take a tip from highway contractors in every corner of the country and have a talk with your B.F.Goodrich dealer. He can help you so many ways. With tires for every vehicle on the road (or in the rough) built with such BFG specialties as Flex-Rite Nylon cord construction, Cut Protected and Heat Resistant compounds. With BFG conveyor belting, V-belts, hose, protective clothing. With BFG steel toe, steel insole safety boots. With on-the-job service that keeps you on the go. With friendly, knowledgeable advice that helps keep costs low. No matter what the job or where, you'll make headway easier and faster with B.F.Goodrich. Your nearby dealer is listed under Tires in the Yellow Pages.

The B.F. Goodrich Company, Akron 18, Ohio.

Specify

B.F.Goodrich Tubeless or tube-type tires when ordering new equipment





... and for

NEARBY SERVICE ...

Black & Decker

tools. Black & Decker maintains 50 factory service branches plus authorized service stations to give your B&D tools the attention mechanical products need periodically. Keep your B&D tools in top condition, on the job all the time.

Only factory parts and factory-approved methods are used. Fast service and reasonable cost, always.

SWIFTY SERVICE says be sure to esk about FREE TOOL INSPECTION no cost, no obligation.

STANDARD BED GUARANTE after

GUARANTE after completion of all recommended repair work.

You'll find the location of the nearest B&D repair facility in the Yellow Pages under "Tools-Electric," or write for address to:
THE BLACK & DECKER MFG. Co.,
Dept. 2205-S, Towson 4, Md.



Circle 22 on Reader Service Card

Job Talk ...



Contractor-Built Conveyor Places Concrete

A California contractor has developed a portable conveyor that places column concrete at a rate of 2 yd per min. The Griffith Co. built the machine in their shop for use on elevated sections of Los Angeles Freeways. They recently averaged 16 columns per day with the time-saving rig.

Griffith's maintenance manager T. I. Gibson, supervised construction of the \$14,000 machine. It consists of a conveyor boom mounted on a lengthened truck frame. Take-off shafts from the truck engine power both boom and conveyor. The operator raises the boom to the required height for placing concrete, lowers it for moving the machine under its own power to the next column. A

safety device cuts off the boom power when it reaches maximum height.

A telescoping chute at the business end of the conveyor can be lowered into the column form. This keeps concrete drop within the 6 ft allowed by specs.

Transit-mix trucks dump concrete into a small hopper at the bottom of the conveyor. The conveyor can handle two trucks dumping simultaneously, but ordinarily Griffith feeds the belt with one truck at a time.

The entire operation calls for only four men besides the truck drivers. They are the machine operator, a signalman atop the column form, a vibrator operator, and a finisher.

Closed-Circuit TV Coordinates Construction



A closed-circuit TV network combined with two-way radios enables Project Manager John Hoehl of Johnson, Drake & Piper, Inc. to coordinate his construction crews, manipulate equipment and hold conferences with his subordinates while sitting in his office.

The job is part of an extensive new approach system being built at the George Washington Bridge to link its new lower level with the Cross-Bronx Expressway. JD&P's main chore is cutting a blockwide swath across congested upper Manhattan.

A TV camera installed atop a five story building scans the encontinued on page 27

PRODUCTION...CONSTRUCTION...MAINTENANCE



whether the job's drilling, sanding, sawing,



or any other tool job, you'll find that



Black & Decker. Distributors help cut costs!

Save time whenever you need a portable electric tool . . . simply call your local Black & Decker distributor. He stocks over 125 tools and 3,000 accessories to give you complete selection, fast delivery, tool know-how and personal service. Or, for complete tool information mail coupon at right.



Circle 23 on Reader Service Card

THE BLACK & DECKER MFG. CO., Dept. 2205, Towson 4, Md.

Send me information on.....

Address



BEFORE: Jaeger 3" Trash Pump removing very dirty water. Note discharge stream. 3" model pumps 20,000 gph, 4" model pumps 46,000 gph @ 10' suction lift. Give you big capacity plus ability to handle trash.



AFTER: Pump on repriming cycle handling seepage. Unclagged strainer continues to function perfectly on mud bottom.

New Jaeger "PosiJector" Trash Pumps lick dewatering problems

• First self-priming centrifugals that pass and positively eject trash.

• No more clogged strainers. Now you can use Jaeger's big-opening strainer that passes leaves and sticks.

• Safely pump trashy water with Jaeger heavy 2-bladed impeller that passes up to 2" diameter solids.

• Positively discharge the trash with revolutionary Jaeger "PosiJector." It prevents recirculation of solids and channels them into the discharge flow from the pump. No other trash pump has this essential feature.

• Entire suction chamber quickly removable for periodic cleaning and

inspection or adjustment of liner plate and impeller. Another Jaeger exclusive.

• Ideal for all dewatering work: With

• Ideal for all dewatering work: With their 20,000 and 46,000 gph capacities



"PosiJector" prevents recirculation of solids that wear and clog other pumps. (Pat. Pending)

Jaeger 3" and 4" trash pumps are efficient for any job and essential on dirty jobs. Call your Jaeger distributor or send for new Catalog PT-1.



Quick, easy access to pump, liner plate and impeller. Entire suction chamber removable.

THE JAEGER MACHINE COMPANY, 800 Dublin Avenue, Columbus 16, Ohio

Jaeger Machine Company of Canada, Ltd., St. Thomas, Ontario

World wide sales and service through Jaeger International Corp., Apartado 137, Panama, R. P.
Circle 24 on Reader Service Card





10 Axle - 15 Speed "Michigan Special"

This ten-axle Autocar was custom designed specifically to haul core sand over Michigan's highways. Completely within the 55-foot length limit and conforming in every way to axle-weight laws, the "Michigan Special" is powered by a Cummins 290-hp NHS through a fast-shifting Fuller Model 15-B-1120 Transmission designed especially for this rig. The axle ratio is 7.54:1, and the maximum GCW is 137,000 pounds.

It takes real power and fast shifts to move 93,000 lb. payloads from a dead stop to highway speeds. The Fuller 15-B-1120 fits the bill perfectly.

Proved by years of the most exacting operations, the Fuller Model 15-B-1120 Transmission combines a 5-speed main and a 3-speed Auxiliary Transmission into one single unit with 15 closely spaced ratios for top performance. The single-unit construction allows short-wheelbase installation and eliminates the weight of support brackets, cross members and a propeller shaft. An extra, SAE eight-bolt, heavy-duty PTO opening on the right side provides a source of power for the heaviest of winches.

GEAR RATIOS

| | 12-0-11 | 20 | |
|-------|--------------|-------|--------|
| Speed | Split | Ratio | % Step |
| 15 | O'Drive-High | .537 | 19 |
| 14 | O'Drive-Int. | .64 | 24 |
| 13 | O'Drive-Low | .794 | |
| 12 | Direct-High | .84 | 6 |
| 11 | Direct-Int. | 1.00 | 19 |
| 10 | Direct-Low | 1.24 | 24 |
| 100 | | | 19 |
| 9 | 3rd-High | 1.48 | 19 |
| 8 | 3rd-Int. | 1.76 | 24 |
| 7 | 3rd-Low | 2.18 | 19 |
| 6 | 2nd-High | 2.59 | 19 |
| 5 | 2nd-Int. | 3.08 | |
| 4 | 2nd-Low | 3.82 | 24 |
| 3 | 1st-High | 5.49 | 44 |
| 2 | 1st-Int. | 6.54 | 19 |
| 1 | 1st-Low | 8.11 | 24 |
| | | | |

PFULLER .

TRANSMISSION DIVISION

EATON MANUFACTURING COMPANY



KALAMAZOO, MICHIGAN

Sales & Services West. Dist. Branch, Oakland 6, Cat. * Southwest Dist. Office, Tulsa 3, Okla. * Automotive Products Co., Ltd., Brock House, Langham St., London W.1, England, European Rep. Circle 26 on Reader Service Card



tire construction area. In his office inside the building, Hoehl follows job progress on a 17-in. Philco monitor. He operates the camera by remote control, zooming in on trouble spots for a closer look and transmitting orders to his foremen via two-way radio.

The camera's zoom lens, which has a variable focal length from 2.4 to 12 in., allows distant shots to be brought in close. The camera is fully revolving and tilts downward to 60 deg below horizontal. A 50-ft-wide scene can be

picked up with perfect clarity at a distance of ¼ mi.

Mounted in a weatherproof housing, the camera comes equipped with a windshield wiper to insure proper vision during inclement weather. A special shielding device prevents pickup of TV signals sent by nearby stations.

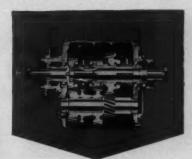
The closed-circuit TV system cost \$6,500. It was designed by Philco's Government and Industrial Group and installed by Clarkson Sound Systems, Brooklyn.



Carriage-Mounted Bucket Speeds Concreting

At Navajo Dam in New Mexico, a carriage-mounted bucket controlled by winch-operated cables places concrete on the steep slope of a 1,400-ft-long spillway. Prime contractor Morrison-Kaiser-F&S built the rig in a shop at the job site.

The bucket is a 2-yd Gar-Bro built up with a steel plate at the lip to a capacity of 3 yd. A steel continued on page 32



Specify FULLER

Specify the

MODEL

For medium-heavy duty trucks and tractors specify the

3-SPEED AUXILIARY

- High capacity
- Widest range of ratios
- Top-mounted power take-off optional
- Low initial cost, reduced maintenance
- Available from all truck
 manufacturers on specification

| | SPLITTER | RATIOS | DEEP REDUCTION |
|--------|----------|-------------------|-------------------|
| MODEL | High | Inter- mediate | Low |
| 3-A-65 | .754 | 1.00 | 2.221 |
| 3-B-65 | .804 | 1.00 | 1.239 |
| 3-C-65 | .754 | 1.00 | 1.239 |
| 3-D-65 | .804 | 1.00 | 2.221 |
| 3-E-65 | .804 | 1.00 | 1.74 |
| 3-F-65 | .754 | 1.00 | 1.74 |
| 3-G-65 | 1.00 | 1.32 | 2.221 |
| 3-H-65 | 1.00 | 1.32 | 1.74 |
| | | 00 | 0 |
| | | -1- | |
| | | 1 | V Business |

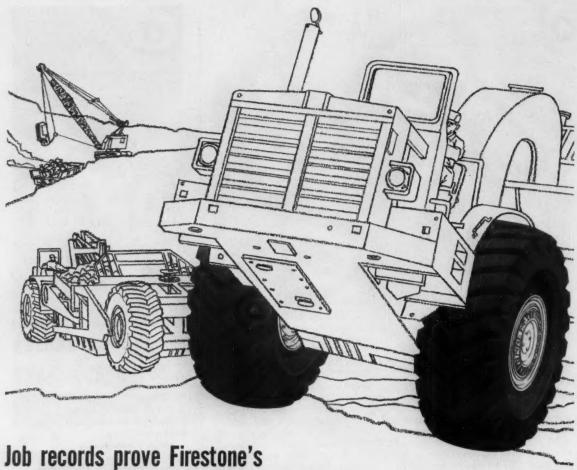
Specify the MODEL

FULLER TRANSMISSION DIVISION

Specify

EATON MANUFACTURING COMPANY KALAMAZOO, MICHIGAN

Circle 27 on Reader Service Card



BIG TIRE TEAM KEEPS PRODUCTION UP!

- Firestone Giant Tires keep equipment working to keep production up! You get more work out of ROCK GRIP EXCAVATOR* tires because far more strength is built into them. Shock-Fortified, bonus-ply nylon cord body, teamed with tough cut-resistant Firestone Rubber-X, gives greater staying power to take the worry out of low bids.
- Firestone Giant Tire Service: A Tire Specialist with a completely equipped service truck is on the job to ease deadline pressure, with round-the-clock maintenance for every tire on the project. Put him on the job, and watch your downtime take a dive!

Team up with Firestone cost-cutting Giant Tires and Giant Tire Service. See your Firestone Dealer or Store. Or write: Manager, Off-The-Highway Tires, The Firestone Tire & Rubber Company, Akron, Ohio.

Always Specify Firestone Tires When Ordering New Equipment.



Tune in Eyewitness to History every Friday evening, CBS Television Network

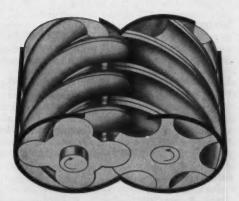
Circle 28 on Reader Service Card



Here's the world's FIRST single-engine

1200 cfm

portable air compressor



ADVANCED DESIGN CYCLOIDAL COMPRESSION

This illustration shows the cycloidal rotor method of compressing air. As the lobes and grooves roll into each other, the mating pockets of air are joined and compressed. This design is similar to that of the Ingersoll-Rand Axi-compressor which has been in use for several years for stationary service. New refinements and design features make it ideally suited for large-capacity portable units.

Now, for the first time, you can meet your requirements for large blocks of air power with a compact, single-engine-driven compressor that's truly portable. For Ingersoll-Rand's advanced design 1200-cfm portable is no larger than a 900-cfm unit, and actually weighs 1000 pounds less!

Driven by a single General Motors 12V71 diesel engine, this new machine utilizes a compact, light weight cycloidal compressor with only two moving parts. It gives smooth, pulsation-free positive-displacement compression with a new high in capacity per pound of compressor weight.

Ask your Ingersoll-Rand engineer or distributor for complete information.



\$125,000,000 of construction in 5 years

spotlights progressive management, techniques and equipment of Hendrickson Brothers, Inc.

> Milton A. Hendrickson, President and CONSTRUCTION METHODS subscriber since 1952 says:

> I enjoy CONSTRUCTION
> METHODS' coverage of equipment and its use, and have discussed certain articles with our personnel. I read it for new ideas and have picked up things on equipment and techniques that I have pursued in our operations. I also read the advertising for new equipment and ideas. I find the magazine interesting and informative. I like it.



Hendrickson Equipment Inventory

- 68 trucks-(Mack, White, Autocar, Ford)
- 27 pickups-(Ford)

- 23 trailors—(Rogers, Trailmobile)
 17 suburban-panels—(Ford)
 12 crawler cranes—(Bucyrus-Erie, P&H, Lima, Lorain)
- 20 truck cranes-(Lima, Bucyrus-Erie, P&H, Lorain)
- 6 Gradalis
- 60 buckets-(Owen, Erie, Gar-Bro, Insley)
- 12 trenchers—(Parsons, Gar Wood, Cleveland)
 7 compressors—(Gardner-Denver, Jaeger, Ingersoll-Rand)
- 29 generators—(Griffin, GE, Red Devil, Homelite, Kohler)

- 19 vibrator heads—(Vibro-Pius) 11 saws—(table, band, router, Jointer bayonet) 22 power hand saws—(Skil, Porter Cable) 27 chain saws—(Wright, Mail, McCulloch, Clinton)
- 28 air hammers—(Thor, Ingersell-Rand, Gardner-Denver, Chicago Pneumatic)
 4 |ack hammers—(Ingersell-Rand, Gardner-Denver, Thor)
 34 pumps—(CH&E, Gorman Rupp, Marlow, Griffin Wellpoint)
 4 |ot pumps—(Griffin Wellpoint)
 17 mud hogs—{Marlow, CH&E, Gorman Rupp)

- 15 wellpoint pumps—(Griffin Wellpoint) 10 generator-tampers—(Jackson) 18 tampers—(Jackson, Jay) 8 portable grinders—(Skil) 17 electric drills—(Black & Decker)

- 35 crawler tractors (Caterpillar, Euclid, International)
 2 wheel tractors—(Michigan)
- 6 MRS tractors
- & Tournarockers
- 37 scrapers—(Caterpillar, LeTourneau-Westinghouse, International)
- 16 front end loaders—(Hough, Michigan)
- 6 graders-(Austin-Western)
- 7 tandem rollers—(Eurfale Springfield)
 5 sheepsfeet rollers—(Euclid, LeTourneau-Westinghouse)
 6 wobble wheel rollers—(Bros, Tampe)
- 37 2-way radies
- I base station
- 21 tool trailers 16 office trailers—(L. B. Smith)
- 10 gasoline pumps 89 concrete chutes
- **6** Impact wrenches 13 concrete vibrators
- 7 are welders

Miscellaneous—(Blowers, jacks, blast machines, healers, steam cleaners, machine tools, etc.)

One of Long Island's largest and outstanding contracting companies is Hendrickson Brothers, Inc. of Valley Stream, L. I., N. Y. This company's beginning can be traced to 1903 when John Hendrickson of Valley Stream engaged in the maintenance of town roads, excavations, and building construction. Gradually Arthur Hendrickson took over the business from his father. His brother Frank united his trucking business with the sand, gravel, excavating and grading business in which Arthur was engaged. The third brother, G. Freeman, joined his brothers shortly thereafter.

As larger projects were bid on and won, income was used exclusively to increase the size of the plant by investing in newer and more modern equipment. This enabled the company to enlarge its volume and to widen its field of operation. By 1923 the Hendrickson brothers

incorporated. Willingness to pioneer was a strong factor in the company's success and growth. Hendrickson Brothers were often the first to buy new kinds of equipment and attempt new types of construction. By World War II, this contractor had developed into a construction firm of considerable size, experience and prominence.

Sons take over—Company grows and prospers

The management and direction of Hendrickson Brothers, Inc. today rests principally with the sons of the three Hendrickson Brothers. Milton A. Hendrickson is President; John C. Hendrickson, Secretary; Frank C. Hendrickson, Jr., Treasurer. Each of them holds the position formerly held by his father, Each has had broad experience and training in various phases of contracting operations. Milton joined the company in 1933, John in 1945, and Frank in 1947. The original founders are officers of the company, but the sons are running the show.

\$125,000,000 of construction in 5 years

Under the capable management and direction of the Hendrickson cousins, the company has continued to grow and prosper at a rapid rate. Today, the firm engages in road and bridge construction (asphalt and concrete) with some 34 bridges currently in construction or to be constructed. Other types of work include sewage, sewage disposal plants, earth moving, grading, and industrial site work

Hendrickson's work is all in New York State, with the heaviest concentration in Long Island. In 1960, the company completed \$25 million of construction . . . \$125,-000,000 in the last five years. Hendrickson prides itself on tackling the unusual and difficult jobs. Today, they are specialists in dewatering, employing all of their own dewatering equipment on tough underwater projects.

1150 employees and \$4 million of equipment

The accelerated growth and success of this contractor in recent years is due to the company's emphasis on technical know-how, efficient equipment, and the selection and training of highly capable management and supervisory personnel. The company boasts a permanent staff of 150 and up to 1,000 workers during peak season. All supervisory personnel have had broad construction experience.

Backing up the three principals, Milton, John and Frank, Jr., are Sam Horton, V. P. Engineering; Albert Hendrickson, V. P. & Gen'l Supt. of Construction; Vern Norton, Charge Sewer Const.; Ferdinand Hoeffner, Asst. Sect'y; Edward Regnell, Labor and Personnel Relations; Ernest Olson, Controller; Cliff Smith, Master Mechanic.

Invests \$600,000 a year for equipment \$5,500,000 for Materials

To produce \$25 million of road, bridge, sewage and

industrial construction, Hendrickson Brothers owns and operates over 1,000 units of construction equipment. A partial inventory is shown at the left. This contractor is continually on the lookout for new machinery that will do a more efficient, productive job, and will purchase an average of \$600,000 a year for new equipment. In 1960, steel, lumber, asphalt, concrete and other vital materials used by the company came to \$5.5 million. The vast amounts of equipment and materials used by this contractor reflects the scope of its construction operations.

Many key personnel influence purchases

The purchases of construction machinery and materials is one of the most significant aspects of Hendrickson's operation. The know-how, opinions and recommendations of many key personnel are taken into account before the final purchases are made. As president Milton Hendrickson says:

"On matters of purchasing, particularly equipment, we have meetings of key personnel before we decide what to buy. The opinions and recommendations of the treasurer, secretary, vice president in charge of construction, master mechanic, shop foremen and mechanics, top operators and field maintenance force are all considered. We sometimes get equipment on demonstration and our top operators try it out. On the basis of our discussions with our personnel, series of meetings, plus the experience of myself and other principals of the company, our buying decision is made."

On the basis of this contractor's success, their methods and policies for major purchases are sound.

Invests \$1 million a year for maintenance

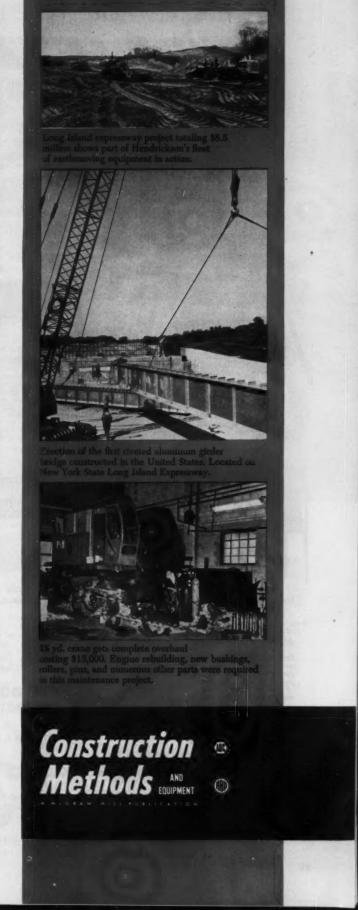
President Milton Hendrickson has the unique experience of having operated every kind of equipment the company owns. He has worked as a maintenance and repair man and Master Mechanic. It's no wonder that this contractor knows the importance and value of a rigid maintenance program. A 5-acre site is devoted to maintenance shops and storage. These shops contain the finest tools and equipment used by a two shift crew of 46 men. An inventory of over \$150,000 worth of parts and accessories is maintained. Four radio equipped, modern maintenance trucks float to and from the various jobs to speed repairs and cut downtime.

Emphasizes safety program

Hendrickson Brothers, Inc. has formulated an outstanding program of safety. Headed by Ferdinand Hoeffner, the program includes regular meetings and lectures. The program is further supported via the monthly house organ which is mailed to every employee of the company. Randy Martin of the administrative division of the company is on the executive committee of the construction section of the National Safety Council.

Teamwork and unanimity of action

... on the part of the principals is a notable feature of Hendrickson Brothers operation and success. This policy of complete agreement on all important matters is still adhered to by the present principals . . . the Hendrickson cousins. The company naturally attempts to keep up with the times. And one way that the principals and key personnel in Hendrickson Brothers (and other important contractors across the nation) keep abreast of new equipment, techniques and materials is by reading CONSTRUCTION METHODS AND EQUIPMENT magazine. Today, it serves the needs of over 49,000 paid subscribers.



NEW DIETZ DLDING BARRICADES

STAND up solidly on the job ... FOLD up compactly for carrying, storing!

Rugged and durable on the job, Dietz Folding Barricades are more than equal to the roughest handling, the toughest duty, the nastiest weather. When out of service, they fold up snugly to save valuable space on truck, or in garage or warehouse. Especially designed for mounting Dietz Visi-Flash hazard warning lights, the Folding Barricades shown below offer economies from every standpoint . . . including the purchase price!



ALUMINUM BARRICADE WARNING SIGNS

Eye-compelling "Scotchlite" reflective emblem, red let-tering on white background, mounted on sturdy aluminum panels for use on barricades. If barricade is damaged, sign is removable for use on another barrier. Four 355 & 357 "DANGER"

mounting screws included.

355 & 357 "DANGER" EMBLEM. 355: 5" x 18"; 357: 5" x 30".

DANGER

356 & 358 "CAUTION" EMBLEM. 356: 5" x 18"; 358: 5" x 30".

CAUTION



360 & 361

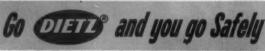
BARRICADES

High-visibility panels with alternating 6" black-and-yellow stripes. Boltet construction. 42" long. Height open, 387%". #360: 18 gauge steel panels. Depth closed, 2½". #361: ½" were weather proof plywood panels. Depth closed, 2¾".

R. E. DIETZ COMPANY

Dept. 65 SYRACUSE 1, N. Y.

WRITE For complete Hazard Warning Catalog



Circle 32 on Reader Service Card

JOB TALK . . . continued from page 27

band encircling the bucket holds a pair of trunnion pins (from a Cat D4 dozer) that rotates atop the triangular steel frame of the carriage. This permits the bucket to pivot and remain upright regardless of the slope of the spillway. Four solid-rubber wheels support the carriage.

A Clyde single-drum, twospeed winch mounted on a track along the bottom of the spillway operates the cable that runs the rig up and down the spillway slope. Cables attached to two other single-drum winches-one at each end of the spillwaymove the bucket laterally. The cables are rigged so the bucket can be moved diagonally to reach any position quickly. One man operates the bucket by remotecontrol from a vantage point at the side of the spillway. The bucket gates are air-ram operated with a quick-couple arrangement.



Metal Plates Protect Paving Forms

Metal protection plates practically eliminate time-consuming cleaning of paving forms for an Arizona contractor. Tanner Bros. Contracting Co. of Phoenix protect their brand-new paving forms by placing metal plates on the outside of the forms. Pegs hold the plates even with the top of the forms, from which they slant down to the grade. Wet concrete spilled on the plates slides off onto the ground instead of sticking to the outside of the paving forms and hardening to make a messy cleaning job. Tanner's crew finds the plates are easily inserted and removed as paving progresses.

From Cows to Cars in Boston Common



Owner: Massachusetts Parking Authority; George Lewis Brody, Chairman General Contractor: The Foundation Company, New York, N. Y. Pumping Contractor: American Dewatering Corporation, Rockaway, N. J.

Boston Common is historic ground. Massachusetts was but a colony when this land was set aside in 1634 for a "trayning field" and the "feeding of cattell". For many years both Colonial troops and cows were customary sights on the Common.

During the Revolution the Common became a rallying point for patriots, and it has continued to be a meeting spot for free men and a center for free speech. Many great celebrations have been held here. Folks long forgotten, and folks long to be remembered, alike have made use of the Common.

Now the Common is entering a new era of use. Upon its site the city is building an underground garage which will provide parking space for thousands of the cars that enter Boston daily. To enable work to be done efficiently and "in the dry", Moretrench wellpoints keep 31 feet of water under constant control.

The Common's surface has been removed only temporarily, and when the garage is roofed over, trees, shrubs and turf will be restored to their original places. The Common will continue to have its familiar and historic look. It will only have deepened in its use to people.

Pumping is our business. You profit from our experience when you work with Moretrench — in the dry.

Moretrench Corporation

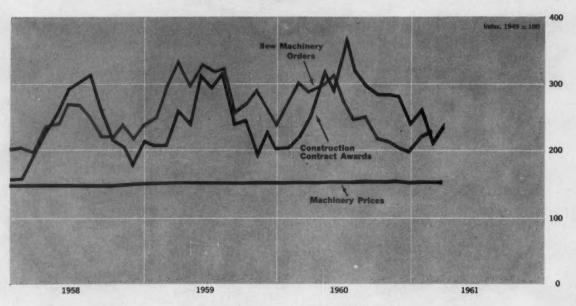
389 Main Street Hackensack, N. J. HUbbard 9-7676 New York Tel.: CO 7-2283 4900 S. Austin Ave. Chicago 38, Illinois POrtsmouth 7-4212 7701 Interbay Blvd. Tampa 9, Florida TAmpa 61-1871 315 W. 25th St. Houston 8, Texas Rockaway New Jersey OAkwood 7-2100

WESTERN REPRESENTATIVE: Andrews Machinery of Washington, Inc., Seattle 4, Washington CANADIAN REPRESENTATIVE: Geo. W. Crothers Limited, Toronto, Ontario

BRAZILIAN REPRESENTATIVE: Oscar Taves & Co., Ltd., Rio de Janeiro

Circle 33 on Reader Service Card

Trends in the Machinery Market...



Equipment Prices Remain Steady in First Quarter

LIST PRICES of new construction equipment remained steady during the first quarter of 1961. Price tags rose on a few models and fell slightly on others, but there was little change in the US Bureau of Labor Statistics over-all price index.

March marked the first time in six months that BLS' index failed to move. The March 15 index held at February's all-time high of 178.1 (based on 1947-49 as 100).

BLS' sub-index for ½-yd crawler shovels rose 2.2% between Jan. 15 and March 15 and the sub-index for ¾-yd models rose 1.3%. Portable air compressors climbed 10% for models over 200 cfm and 7.5% for models under 200 cfm. The index for tractor-loader attachments rose 1.2% in February.

Partially offsetting these increases were reductions in price indexes for dewatering pumps in the 10M-gph class (off 1.3%) and for hydraulically controlled bulldozers (off 0.3%). Revised February indexes were slightly downward for tandem rollers and dewatering pumps in the 90M-gph class. Prices of truck mixers moved back up in February.

New orders placed with manufacturers of construction and mining machines rose in February for the third consecutive month, according to the McGraw-Hill Economics Dept.'s index. Dealers apparently were experiencing a rise in sales and inquiries, or pinning their hopes on a rise in contractors' new business to spur equipment buying.

Heavy construction contract volume perked up in March, although not enough to keep the contract award index from slipping 4% under a year ago. January kept 1961 first quarter volume 6% above last year, as reported by Construction Methods.

Price Index

| | MARCH 1961 | MONTH AGO | YEAR AGO | CHANGE 1960-1961 |
|---|----------------|----------------------------|-------------------------|-------------------------|
| All Types of Equipment Cranes; Draglines, Shovels Shovel, ½ cu yd | . 173.4 | 178.1* 173.0* 171.3* | 174.3 172.1 167.7 | + 2.1 + 0.7 + 3.2 |
| Shovel, 34 cu vd | . 177.7 | 176.6 | 174.7 | + 1.7 |
| Shovel, 1-11/2 cu yd | . 169.1 | 189.3 169.1 | 187.0 166.4 | |
| Shovel 3-31/2 cu vd | 159.8 | 159.8 197.9 | 167.8 195.0 | |
| Shovel, 6 cu yd | 165.9 | 165.9* | 168.2 | - 1.4 |
| Bucket, clam shell | . 135.1 | 135.1 162.9 | 135.1 162.9 | 0 |
| Bucket, dragline | 169.3 | 169.3 | 169.3 | Ö |
| Scrapers and Graders | . 166.6 | 166.6 | 165.8 | + 0.5 |
| Scraper, 4 wheel, 8-10.5 cu yd Scraper, 4 wheel 12-15 cu yd | 156.8 | 155.0 156.8 | 155.0 156.8 | 0 |
| Scraper, 2 wheel, 15-19.5 cu yd (a |) 126.2 | 126.2 174.1 | 124.9 172.6 | + 1.0 |
| Grader, heavy duty | | 170.9 | 171.1 | - 0.1 |
| Tractors (non-farm, incl industrial) | 195.7 | 195.7* | 190.7 | + 2.6 |
| Wheel type, off-highway (a) Crawler type, 50-74 dph | 205.3 | 129.2 205.3 | 129.0 195.4 | + 0.2 |
| 75-99 dph | . 204.8 | 204.8* | 201.2 | + 1.7 |
| 100-154 dph 155-200 dph | 200.2 | 200.2* 208.6 | 192.4 203.3 | + 4.0 |
| Machinery, Tractor Mounted Dozer, cable controlled | 177.3 | 177.4* | 169.0 | + 4.9 |
| Dozer, cable controlled Dozer, hydraulic controlled | 201.4 | 164.8 201.9 | 154.4 186.6 | + 6.7 |
| Cable power control unit | 152.9 | 152.9 | 151.4 | + 1.0 |
| Loader, tractor shovel | | 166.5° 158.9° | 162.5 157.7 | + 2.4 |
| Specialized Machinery | 153.8 | 153.8 | 150.2 | + 2.3 |
| Roller, tandemRoller, 3 wheel | 228.5 | 228.5* 178.7 | 226.4 178.7 | + 0.9 |
| Ripper and rooter | 164.5 | 164.5 | 150.5 | + 9.3 |
| Ripper and rooter Dewatering pump, 10 M gph Dewatering pump, 90 M gph | 110.1 151.8 | 110.6* 152.1 | 111.5 151.5 | - 1.3 + 0.1 |
| Pertable Air Compressors | | 182.6* | 167.5 | + 9.0 |
| Centractor's Air Toels | | 190.6* | 181.6 | + 4.9 |
| Mixers, Pavers, Spreaders Mixer, portable, 11 cu ft Mixer, portable, 16 cu ft Mixer, truck, 6 cu yd Mixer, paving, 34 cu ft | 160.9 | 160.9* 168.2 | 159.3 166.8 | + 1.0 |
| Mixer, portable, 16 cu ft | 172.9 | 172.7 | 172.7 | + 0.1 |
| Mixer, truck, 6 cu yd | 134.4 | 134.4° 192.9 | 132.7 193.5 | + 1.2 |
| Concrete minisher & spreader | 190.7 | 196.7 | 199.7 | - 1.6 |
| Bituminous distributor | 126.2 | 126.2 179.4 | 126.2 170.2 | + 5.4 |
| Bituminous paver | 165.6 | 165.6 | 163.2 | + 1.5 |
| off-Highway Trucks, Wagons (b) | 102.5 | 102.5 | 101.1 | + 1.4 |
| Contractors off-highway truck (b) Trailer dump wagon (b) | 106.7 | 102.0 | 101.4 | + 5.2 |

• (a) January, 1955 = 100 • (b) January, 1958 = 100 • Revised BLS Primary Market Price Indexes, U. S. Department of Labor, 1947-49 = 100

Circle 35 on Reader Service Card ▶



P. H. Van Orden, President, C. L. Peterson, Vice-President and Treasurer, and R. H. Webb, Foreman of the Van Orden Company, Contractors, of Grand Rapids, Mich., supervise the installation of "K&M" ◆ Asbestos-Cement Sewer Pipe at Paw Paw, Mich.

10,000 FT. OF SEWER PIPE LAID...

... not enough infiltration to measure

Read how the Van Orden Company solved the problems of installation and of infiltration when pipe had to be laid 9 ft. below the water table.





dollars saved.



"Construction of the Paw Paw trunk sanitary sewer

called for installation of pipe at depths up to 19

feet, where water table was at 10 feet. Infiltration

had been the major problem in other sewer instal-

lations in the area. We solved this problem by using "K&M" Asbestos-Cement Sewer Pipe with

its FLUID-TITE joint. With 10,000 feet of sewer

in, we haven't had enough infiltration to measure.

"The longer laying lengths and the speed with which

a joint can be made are definite time-saving factors, which have added to our production. Less time

spent grading pipe and handling material means

Rigorous tests prove "K&M" Asbestos-Cement

Sewer Pipe is infiltration-tight at 25 psi . . . a pres-

P. H. Van Order

the ease of handling and assembly saved us dollars and time!

"K&M" Asbestos-Cement Sewer Pipe wont rust, rot, or corrode. Its smooth bore remains clean, permanently. Flatter grades are possible. Fewer lift stations are required.

Maintenance-wise, the village of Paw Paw, Mich., will enjoy tax savings. "K&M" Asbestos-Cement Sewer Pipe is practically indestructible. Requires fewer inspections, because root growths do not penetrate the exclusive FLUID-TITE coupling.

Write today for more information on "K&M" Asbestos-Cement

Sewer Pipe to: Keasbey & Mattison Company, Ambler, Pa.



sure equivalent to that of a 58-foot head of water.

Keasbey Mattison at Ambler





Two-step assembly! Lubricate the tapered end of "K&M" Asbestos-Cement Sewer Pipe, then slide it into the exclusive, patented "K&M" FLUID-TITE® Coupling.



Light weight reduces shipping and handling costs...saves on installation time. At the same time, there's a minimum of wastage and breakage on the job, with tough "K&M" Asbestos Sewer Pipe.

Maria Maria

This is

AMERICAN

COMPANY

May we introduce ourselves...

American Oil Company is our name. Our organization has more than 70 years' experience in the oil business. We are one of the largest petroleum organizations in America. We believe the experienced American Oil representative who calls on you, plus the products and facilities which he has at his disposal, are reasons why you will like to do business with us.



The American Oil Company representative that calls on Industrial and Fleet customers has many years of experience in this work. Because of this experience and background, he knows your petroleum product needs. He has more than 2,000 products with which to fill these needs.

Meet your American Oil

representative...

SPECIALISTS back-stop representa

In the American Oil Marketing Technical specialists who are recognized authoritie senior consultants may be called in to work ized problem you may have.



RESEARCH

Our research center adjacer one of the largest in the v scientists and technicians ar and finding ways to improv help your American Oil rep nance costs and stretch you



sentatives nical Service Department are

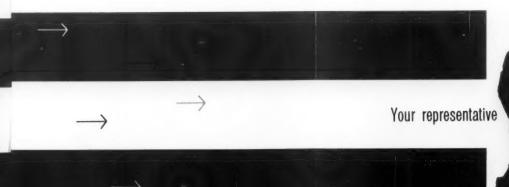
orities in their fields. These work with you on any special-

TRAINING at American's Sales Engineering School

In our Sales Engineering School your American Oil representative receives special training. In concentrated courses of instruction he is given basic information covering all phases of petroleum product quality and application. According to a planned schedule, he returns for an advanced course and then again for post-graduate work.

acent to our refinery at Whiting, Indiana, is the world. More than a thousand research as are at work here developing new products approve present products. Their mission: To representative help you lower your maintea your maintenance dollars.







Americ from 7 Regiona through to Dist Compai phone o ucts you are ava wareho maintai



Speed and flexibility of service begin at the refinery

nerican Oil representatives operate om 74 District Offices. Thirteen gional Offices strategically located oughout the country lend support District Offices. An American Oil mpany representative is only a teleone call from your office. The prodets you need for your plant or fleet available from upwards of 4,100 trehouses and distribution points

aintained to provide quick delivery.

lways nearby

Twelve American Oil refineries give flexibility to production, make it possible to assure prompt delivery. Our 2,875 miles of product pipelines augment delivery facilities.

PRODUCTS available from American Oil Company Your American Oil representative has a line of more than 2,000 products. Here are some of his most important ones . . .

Metal Refining and Metalworking Industries

AMOCUT Oils Cutting oils for every type of machining operation.

AMERICAN Industrial Oils Lubricating oils for many purposes.

AMOCOOL HD Soluble Oil Heavy-duty soluble oil. **RYKON Greases**

For every grease-lubricated bearing. Anhydrous Ammonia & Nitrogen Solutions

AMERICAN Diesel Fuel Mining Industry Premium quality, multi-purpose.

AMERICAN HD-M, S-1, S-3 Motor Oils Heavy-duty motor oils.

AMERICAN Industrial Oils For general mine lubrication. **AMERICAN Regular Gasoline**

For heavy-duty operation. **AMOVIS Lubricants** For gears and cables.

RYKON Greases For every grease-lubricated bearing.

ESKAR Dairy Waxes Dairy Industry Premium quality dairy waxes.

Process Industries AMERICAN Industrial Oils Circulating compressor and hydraulic oil. Chemical Food AMODRIP Oils Paper

Premium quality dripless oils.

Process Industries (continued)

ESKAR Waxes All-purpose paper-coating waxes. RYKON Greases

For every grease-lubricated bearing. Anhydrous Ammonia & Nitrogen Solutions AMERICAN Diesel Oils M Power Generation

Premium "MIL" diesel lubricating oil. AMERICAN Diesel Fuel Clean-burning premium diesel fuel.

NONPAREIL Turbine Oil
Guaranteed for the life of the turbine.

AMERICAN D&G Oils
Premium S-1 level lubricating oil for diesel and gas engines.

AMERICAN Diesel Fuel Truck, Bus and Construction Equipment Clean-burning premium diesel fuel. AMERICAN HD-M, S-1, S-3 Motor Oils

Heavy-duty motor oils. AMERICAN Regular Gasoline For heavy-duty operation. AMOCO Lithium Multi-Purpose Greases All-purpose greases.

Super PERMALUBE Grease Anti-rust, high-load carrying chassis grease.

Diesel Fuels and Lubricants Railroads Fertilizer Manufacturers Anhydrous Ammonia & Nitrogen Solutions For Road Construction Asphalt Products and Industry Complete line.







AMERICAN

COMPANY

910 S. Michigan Ave., Chicago 80, III.



Highway Awards to Rise Sharply

Planning Ahead for Highways and Bridges

| | To | otals | Chg. | | Chg. | | Chg. | | Chg. |
|-----------------------------|---------------|----------------|--------------|-----------------|--------------|--------------|-------|---------------|--------------|
| | 1961 Plans | 1960 Actual | '60-'61 % | Inter- state | '60-'61 % | ABC | 60-61 | 100% State | '60-'61 % |
| U. S. TOTAL | | | + 15 | 2236.3 | + 28 | 1,728.0 | + 14 | 539.1 | - 17 |
| NEW | | | | | | | | | |
| ENGLAND | 262.2 | 175.6 | + 49 | 160.7 | +117 | 75.6 | - 2 | 25.9 | + 20 |
| Maine | 25.5 | 22.6 | + 13 | 10.0 | + 9 | 14.0 | + 34 | 1.5 | - 49 |
| New Hampshire | 21.3 | 18.0 | + 18 | 10.4 | + 42 | 7.2 | + 1 | 3.7 | + 3 |
| Vermont | | 15.1 | + 93 | 22.0 | +132 | 7.0 | + 36 | 0.2 | - 63 |
| Massachusetts | 108.0 | 79.5 | + 36 | 57.5 | + 55 | 37.5 3.3 | + 20 | 13.0 | + 17 |
| Rhode Island Connecticut | | 24.1 | + 46 + 126 | 41.7 | +789 | 6.6 | - 61 | 6.0 | +150 |
| MID ATLANTIC | | 617.7 | + 20 | 347.5 | + 23 | 249.4 | + 26 | 143.1 | + 4 |
| New York | | 297.9 | + 1 | 118.0 | + 2 | 120.0 | + 8 | 62.0 | - 12 |
| New Jersey (a) | 115.0 | 51.4 | +124 | 60.0 | +233 | 45.0 | + 67 | 10.0 | + 56 |
| Pennsylvania | | 188.7 | + 6 | 100.0 | - 11 | 60.0 | + 25 | 40.0 | + 39 |
| Maryland | | 46.9 | + 2 | 19.1 | + 10 | 2.7 | + 13 | 26.2 | - 4 |
| D. C | 52.0 | 28.4 | + 33 | 34.4 | + 85 | 14.7 | + 88 | 2.9 | + 44 |
| Delaware | | 4.4 | +475 | 16.0d | + | 7.0 | +289 | 2.0 | - 22 |
| SOUTH | 956.6 | | + 29 | 465.8 | + 32 | 325.4 | + 25 | 157.1 | + 5 |
| Virginia | 130.0 | 81.0 | + 60 | 81.0 | + 58 | 49.0 | + 64 | 0 | 0 |
| West Virginia | 49.5 | 27.9 | + 77 | 27.6 | + 98 | 22.0 | + 57 | 0 | 0 |
| No. Carolina | 60.0 | 44.3 | + 35 | 27.0 | + 72 + 41 | 30.0 | + 23 | 9.0 | - 29 0 |
| So. Carolina Georgia | 53.0 155.0 | 48.2 82.2 | + 10 | 60.0 | + 41 + 89 | 45.0 | + 23 | 50.0 | + 262 |
| Florida | 100.0 | 92.4 | + 8 | 30.0 | + 12 | 15.0 | + 11 | 55.0 | + 6 |
| Alabama | 90.0 | 92.5 | - 3 | 42.0 | + 10 | 37.0 | - 7 | 11.0 | - 23 |
| Mississippi | 38.0 | 39.7 | - 4 | 21.4 | 8 | 16.5 | + 1 | 0.1 | - 20 |
| ouisiana | 102.0 | 95.0 | + 7 | 50.0 | + 12 | 33.0 | + 3 | 19.0 | + 5 |
| Centucky | 73.0 | 63.1 | + 16 | 35.8 | - 13 | 28.9 | +127 | 8.3 | - 7 |
| Tennessee | 106.0 | 76.3 | + 39 | 71.0 | + 36 | 25.0 | + 55 | 10.0 | + 29 |
| MIDWEST | . 848.0 | 811.9 | + 4 | 450.0 | + 19 | 344.0 | + 6 | 54.0 | - 51 |
| Ohio | 200.0 | 215.7 | - 7 | 105.0 | + 18 | 80.0 | + 22 | 15.0 | — 76 |
| ndiana | 95.0 | 94.4 | + 1 | 40.0 135.0 | + 27 | 52.0 70.0 | - 30 | 3.0 | + 11 |
| llinois | 215.0 | 227.0 69.8 | + 26 | 28.0 | + 27 + 21 | 40.0 | + 48 | 20.0 | |
| Nisconsin | 250.0 | 205.0 | + 22 | 142.0 | + 18 | 102.0 | + 29 | 6.0 | + 4 |
| MISS, TO | 250.0 | 200.0 | 7 | 1 12.0 | 7 10 | 102.0 | T | 0.0 | |
| ROCKIES | 0243 | 968.7 | + 6 | 448.2 | + 20 | 472.0 | + 2 | 104.2 | - 21 |
| Minnesota | 92.0 | 69.0 | + 33 | 48.0 | +167 | 41.0 | - 13 | 3.0 | - 25 |
| owa | 86.4 | 84.2 | + 3 | 21.2 | + 18 | 35.2 | + 8 | 30.0 | - 11 |
| Missouri | 142.0 | 141.1 | + 1 | 70.4 | + 1 | 69.6 | + 23 | 2.0 | - 86 |
| Arkansas | 49.2 | 45.4 | + 8 | 24.0 | + 13 | 25.0 | + 5 | 0.2 | - 50 |
| North Dakota | 27.1 | 34.4 | - 21 | 9.0 | - 16 | 18.0 | - 23 | 0.1 | - 50 |
| South Dakota | 42.9 | 47.3 | - 9 | 24.2 | + 11 | 16.7 | - 16 | 2.0 | - 65 |
| Vebraska | 47.0 | 42.9 | + 9 | 24.0 | + 19 | 23.0 | + 43 | 0 | -100 |
| Cansas | 68.0 | 66.0 48.8 | + 3 + 3 | 27.0 | | 35.0 26.7 | + 24 | 6.0 | - 15 + 17 |
| Texas | 245.0 | 245.0 | + 3 | 89.0 | + 7 | 106.0 | 0 | 50.0 | 0 |
| Montana | 41.0 | 30.3 | + 35 | 22.0 | + 65 | 19.0 | + 12 | 0 | 0 |
| Wyoming | 48.3 | 35.9 | + 35 | 31.8 | + 95 | 11.4 | - 23 | 5.2 | + 8 |
| Colorado | 46.0 | 43.1 | + 7 | 16.0 | + 3 | 27.5 | + 10 | 2.5 | - 7 |
| New Mexico | 39.5 | 35.3 | + 12 | 20.0 | + 61 | 18.0 | - 17 | 1.5 | + 14 |
| AR WEST | 650.6 | 581.6 | + 12 | 364.1 | + 28 | 241.7 | + 32 | 44.8 | - 61 |
| daho | 39.9 | | + 96 | 22.6 | +129 | 15.8 | + 65 | 1.5 | + 51 |
| Jtah | 43.0 | 23.6c | | 25.0 | +118 | 13.0 | + 48 | 5.0 | + 49 |
| Arizona | 45.0 | 40.0 | + 13 | 28.0 | + 65 | 13.0 | 0 | 4.0 | - 60 |
| Vevada | 23.0 | 14.0 | + 64 | 16.0 | +176 | 7.0 | - 15 | 0 | 0 |
| Washington | 63.0 | 59.0 | + 7 | 31.0 | + 8 | 30.0 | + 7 | 2.0 | - 7 |
| Oregon | 55.3 | 60.1 | 8 | 31.5 | - 1 | 21.3 | - 15 | 2.5 | - 21 |
| California Naska-No IS | 328.0 37.0 | 347.6 7.0 | - 6 +432 | 210.0 | + 17 | 90.0 | + 20 | 1.0 | - 70 + 79 |
| Hawaii-No IS | 16.4 | 10.1 | + 63 | 0 | ALCO ACC | 15.6 | + 62 | 0.8 | + 76 |
| uerto Rico-No IS | 21.7 | 9.4 | +131 | 0 | | 20.0 | +257 | 1.7 | - 55 |
| 20110 VICO-140 12 | 21.1 | 7.4 | 4131 | . 0 | ***** | 20.0 | 4521 | 1.1 | - 23 |

• a Fiscal year • b "Downward revisions may be necessary if complications delay awards" • c US Bureau of Public Roads data • d None let in '60

ANOTHER BIG INCREASE in new highway work is in store for contractors this year if state highway departments come anywhere near letting all the contracts they have programmed for 1961. As of now, states plan to jump contract volume for highways and bridges by 15% over last year.

Plans for 1961 add up to more than \$4.5 billion for state projects alone, exclusive of toll roads or toll bridges, according to Construction Methods' annual survey of state highway budgets (see ta-

All New England and Middle Atlantic states plan to let more contracts this year than last. A couple states in each of the other four regions of the U.S. plan on less volume going to contract. But these cutbacks are minor, except for California, Ohio and North Dakota. Texas is the lone standpat state, with no change pro-

grammed.
All of the rise contemplated by highway departments is for federal-aid work. Interstate contracts will climb 28% and "ABC" volume will rise by 14%. These increase contrast with a 17% drop for 100% state-financed work.

Getting off to a flying start, the states awarded \$218 million worth of Interstate work in the first two months. This was a 39% jump over the year-ago period, according to U.S. Bureau of Public Roads figures. And although ABC system contracts lagged 9% behind last year with a two-month total of \$97 million, the gain in interstate work lifted total state highway and bridge volume for January-February to 11% ahead of last year.

The stepped-up pace for state work is behind the sharp rise in highway awards reported by Construction Methods (up 30% over last year for the first 4 months). Bridge contracts lagged behind last year by 40% because the large contracts for New York's Verrazano Narrows Bridge, were included in the year-ago figures.

continued on page 48

15 SECONDS



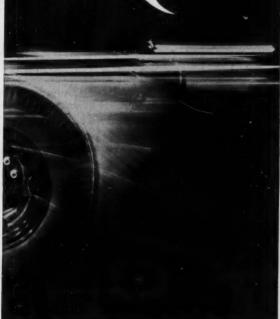




Delco-Remy's External Adjustment Regulator shrinks a fleet's voltagesetting downtime to seconds. The only tool needed is a screwdriver-or a dime. No electrical checking equipment or warm-up period required. Accidental out-of-limit settings are simply impossible.
Changing from city driving to country? Or from winter to summer? Voltage settings can be adjusted almost instantly-and you know what that means to batteries and electrical systems. Longer life. Extra dependability. ■ Another thing: This new regulator has life-prolonging Double-Contact design that keeps generator voltage under strict control at every speed. How long will this Delco-Remy Regulator last? Almost twice the life of an ordinary regulator. See how Delco-Remy piles one economy atop another? Insist on Delco-Remy Double Contact External Adjustment Voltage Regulators for every car and truck you own. They're painstakingly designed to save you money.

Delco-Remy electrical systems

DIVISION OF GENERAL MOTORS . ANDERSON, INDIANA



Circle 47 on Reader Service Card

POKER? Play to win!



How would you play this hand?

Not strong, but play it. Two times in three you'll be high hand before the draw. Raise to drive out pairs. Then stand pat. It's 12 to 1 you couldn't fill anyhow, and it helps set up later, better hands.

Here's a <u>sure</u> winner from FORD:

New Ford 4000 Heavy Duty Fork Lift! Strength, stability and big-tire traction for fast, safe materials handling on rough terrain.

4000 lbs. rated load at 24" load center. Conforms to or exceeds all Fork Lift Industry stability and capacity recommendations.

Five basic models with 10' to 21' lift heights. Two and three-stage telescoping masts with unusually low collapsed heights. Especially built for rough terrain. Its mobility and low collapsed mast height adapt it for work in many areas with low doorways and narrow aisles.

Get details from your Ford Tractor Dealer, or write:

Tractor and Implement Division Ford Motor Company Birmingham, Michigan



Circle 48 on Reader Service Card

CONSTRUCTION BUSINESS . . . continued

Proposed Federal Aid Authorization for Highways

| IN \$ MILLIONS | Feder | Trust Fund | | |
|----------------|---------------------|----------------|-----------|-----------|
| Fiscal Year | Interstate | ABC & Other | Total | Revenues* |
| Actual | | | | |
| 1957 | \$1,000 | \$129 | \$1,129 | \$1,482 |
| 1958 | 1,700 | 859 | 2.559 | 2.044 |
| 1959 | 2.200 | 1.381 | 3.581 | 2.088 |
| 1960 | 2.500 | 906 | 3,406 | 2.535 |
| 1961 | 1,800 | 883 | 2.683 | 2.857 |
| 1962 | 2,200 | 920 | 3,120 | 3,176 |
| Proposed | | | | |
| 1963 | 2,400 | 966 | 3,366 | 3,301 |
| 1964 | 2,600 | 991 | 3,591 | 3,402 |
| 1965 | 2,700 | 991 | 3,691 | 3,499 |
| 1966 | 2,800 | 1,016 | 3,816 | 3,584 |
| 1967 | 2,900 | 1.016 | 3,916 | 3,667 |
| 1968 | 3,000 | 1,041 | 4,041 | 3,749 |
| 1969 | 3,000 | 1,041 | 4,041 | 3,831 |
| 1970 | 3,000 | 1,04! | 4,041 | 3,914 |
| 1971 | 2,885 | 1,041 | 3,926 | 4,007 |
| 1972 | administration with | 1,041 | 1,041 | 4,106 |
| 1973 | - | | - | 1,301 |
| TOTAL | \$37,000† | \$17,010† | \$54,010† | \$52,543 |

†Includes balances available June 30 '56: Interstate \$315 million: ABC & other, \$1,665 million,

*Based on financing proposed by the Kennedy Administration.

The April-June quarter promises to set a new high for the period. Just how much of a gain highway contractors will rack up over the first quarter's volume will depend partly on whether the Bureau of Public Roads advances the quarterly installments of fiscal 1962 federal aid to the states.

Thirty-two states hope that the Bureau of Public Roads will continue to advance the schedule, just as it did for each of the last three quarters of fiscal '61 (making the April-June portion available in February of this year instead of on April 1).

If BPR does advance the obligation schedule, by making the July-September aid available this month or early in June, 34 states say they would advance bid calls on new highway and bridge projects. Only 15 states say that such an advance wouldn't make any difference to their bid advertising schedule for 1961. A few states have counted on an advance when figuring their 1961 contracting plans for Construction Methods' survey.

South Carolina says, "Unless we obtain advance release of reimbursement obligations, advertisements for bid will be delayed." Oregon says that it "will exhaust its reimbursable balance in May." California says, "Lifting of current restrictions on obligations would expedite calls for bids" in '61.

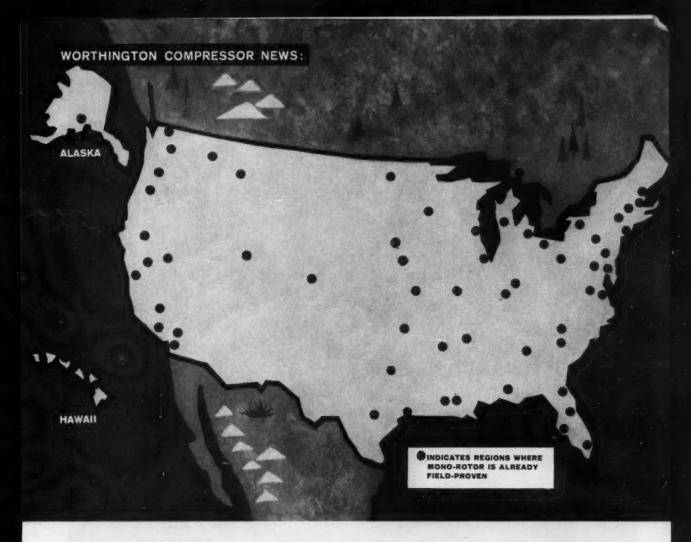
Propose Step-Up In Highway Program

New York Gov. Nelson Rockefeller suggested to the Administration in Washington that it provide as much highway aid as each state could match with its own resources—in effect removing limits set by the authorized apportionments.

Gov. Rockefeller drew a blank, but the Administration does want to increase the annual amount of highway aid to the states in each fiscal year 1963-71 so that the Interstate net can be completed on time. The highway bill that President Kennedy sent to the House in mid-March would increase aid apportionments for each year through 1968, when the annual total would hit \$3 billion in federal funds.

By contrast, the current highway financing plan would cut the Interstate program \$200 million to \$2 billion in fiscal '63 and fall to \$1.5 billion in '64. Though federal aid would rise each year 1965-68, peaking at \$1.9 billion in '68, this still would be 37% less than Kennedy's proposal for 1968.

Pre-Easter hearings on the President's bill to increase highway-user taxes unleashed loud complaints from well-organized highway-users groups. And these lobbies are apparently getting a



MONO-ROTOR PROVEN...WARRANTY QUADRUPLED

The new line of Worthington Mono-Rotor compressors has gained extensive field experience with outstanding success. Performance has been so successful, in fact, that Worthington has lengthened its warranty period from 3 months to one year. It is the first major construction industry compressor manufacturer to do so.

Mono-Rotor units have proven themselves in widespread areas over the last 3 years. They are in locations ranging from New York City to Hawaii—from Alaska



MONO-ROTOR: 1 STAGE... 1 ROTOR... 2 BEARINGS... NO GEARS... NO OIL PUMP to Argentina. Service conditions have ranged from the intermittent use in winter and summer to three-shift use for months at a time.

What makes the Mono-Rotor compressor so dependable? It is extreme simplicity.



NEW 125' MONO-ROTOR BLUE BRUTE

It actually has 63% less parts than its twostage predecessor. The Mono-Rotor has just one stage, one rotor, two bearings, no gears and no oil pump. No other compressor design is so simple.

The new Worthington Mono-Rotor compressors have other benefits, too. They

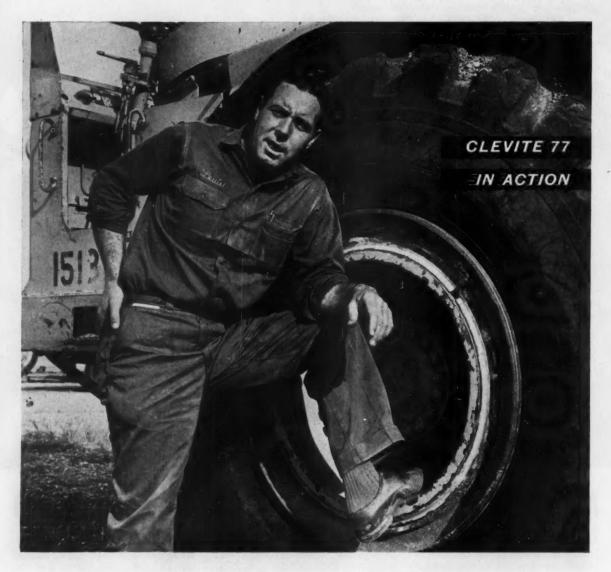
are 20% lighter in weight and are designed for improved towing and tracking. The 3rd wheel is standard equipment for easier handling on the job. It runs all day on a tank of fuel. There's an engine-saving clutch and many other features.

The Mono-Rotor can now be ordered in the 85', 125' and 250' sizes. See it . . . rent it . . . or buy it at your Worthington dealer listed in the Yellow Pages under "compressors". Or write Worthington Corporation, Dept. 60-39, Holyoke, Mass. In Canada, Worthington (Canada) Ltd., Brantford, Ontario.



PRODUCTS THAT WORK FOR YOUR PROFIT

Circle 49 on Reader Service Card



"Clevite 77 keeps my equipment on the job longer...

. . . because we don't have to replace Clevite 77 between major overhauls." Louie Ross knows his bearings. That's why he uses Clevite bearings to keep more than 100 pieces of equipment operating.

Ask your NAPA jobber for the new, illustrated catalog of aluminum bearings for Caterpillar equipment. He has the complete line and the service to help you do a better, faster job.



MONMOUTH Engine Bearings

CLEVITE SERVICE: Cleveland Graphite Bronze . Division of Cleville Corporation . Cleveland 3, Ohio

Circle 50 on Reader Service Card

says Louie Ross Maintenance Superintendent G. C. McBride, Inc. Waco, Texas



CONSTRUCTION METHODS

CONSTRUCTION BUSINESS...

continued

strong supporting response from Main St.

But it's hard to see how highway legislation in 1961 can fail to provide the increased federal aid that the President is asking for Interstate and ABC highway and bridge construction. There's likely to be some compromise on the Administration's part — perhaps the elimination of proposals to tap the Highway Trust Fund for forest road and public lands highway construction. Or they may drop the present plan to pay for relocation of displaced persons from the Fund. And there probably is going to be some give on the tax side—a smaller tax hike on truckers, for instance. Or perhaps a slice will be taken out of the general fund of the Treasury to cover the non-users' share of benefits from the highway construction program, estimated at some 8% of the total cost by the Bureau of Public Roads.

As we go to press, the House Ways and Means Committee OK'd keeping the federal gas tax at 4c/gal and upping other taxes on trucks and rubber.

SOME BIG CONTRACT AWARDS OF THE MONTH

Kaiser Steel Corp., Montebello, Calif. Superstructure contract for same bridge. \$11,400,000.

Commonwealth Construction Co., Winnipeg, Manitoba, Canada. Air terminal building at International Airport, Winnipeg. Department of Transport, Ottawa, Ontario. \$8,033,409.

Fredericksen & Kosler, Gordon H. Ball and Gordon H. Ball, Inc., all of Sacramento, Calif. 5.2 mi of freeway near Redlands, San Bernardino County, Calif. California Dept. of Highways, Sacramento. \$7.946.638.

Daniel Construction Co. Birmingham, Ala. 17-story bank and office in Birmingham. B. S. T. Corp. \$7 million.

Gunderson Bros. Portland, Ore. Floating dry dock at Portland, Ore. Port of Portland. \$5,083,000.

continued on page 54



Will Never Owe You Anything!

Your OWEN Clamshell Bucket starts making money for you from the first hefty mouthful it bites off... and keeps on making money because its rugged construction "stands up". It's the bucket with "The Big Bite that's Just Right!"

The OWEN has a strong appetite for work—an appetite that is never satisfied. These are exclusive features that keep it working for you:

Block and Tackle Type Reeving Recessed Lips
One-piece Head Construction Single Main Shaft
Riveted Bowl Assembly

Prompt service through ample inventory on new equipment and parts.

Write for OWEN information on how these features can make money for you.



BUCKET COMPAN,Y

BREAKWATER AVENUE . CLEVELAND 2. OHIO

BRANCH OFFICES: New York - Philadelphia - Chicago - Berkeley, California - Fort Lauderdale, Florida

Circle 51 on Reader Service Card

Mobil Construction Project Study...



Quarry and crushing facilities operated 6 days a week, on two 10 hour shifts, with machinery lubricated between shifts. Daily 7 to 10 thousand tons of rock were processed to produce stone for concrete and "roadstone" for runway base. Western even set up a rod mill to produce high quality sharp sand from fines. (Below, right) To help

keep operations going steadily, Western employed 2 tank wagons for on-the-spot fueling at the quarry. (Below, left) An in-line, dry-batch plant was set up on the job by Western. Batch trucks fitted with 4 bin separators, each bin holding 1.37 cu. yd. batch, were used. 4 exactly measured charges were delivered to each bin.





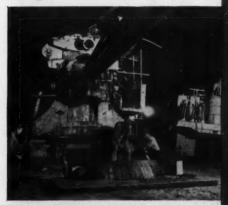
Knowing how one contractor meets the demands of time, efficiency, profit, may help you in your next job.



Trucks, water tankers, etc., were serviced from 1 week to every other day. Basic lubricants were Delvac, Mobilplex EP and Mobilgrease MP.



From dawn to dusk, on 10 hour shifts, 5 to 6 thousand yds. of concrete were placed each day. Final finishing operations went on into the night.



Maintenance and lubrication was also done mostly at night. Critical earth-moving and paving equipment was lubricated and oil changed daily, with fuel and lubrication trucks brought right to the machinery site.

How Western meets *11,000,000 contract for 1st all-jet civilian airport

Contractor moves 90 carloads of equipment 2,000 miles—sets up complete operation from quarry to batch plant

The job . . . to drain, grade and place 250,000 cu. yds. of concrete for ramps, taxi-ways, aprons. The contractor . . . Western Contracting Corp., Sioux City, Iowa. The place . . . Dulles International Airport, 23 miles from Washington.

Starting from scratch, Western set up a completely integrated, self-sufficient operation. It shipped in almost 90 railroad carloads of equipment for quarrying, rock-crushing, batching, earth-moving, and paving in addition to over-the-road equipment. From raw rock to in-place concrete, all elements were controlled by Western. Western established its own quarry and crushing facilities to insure quality and supply. It set up a batch plant and drilled its own well. Western relied on two outside suppliers. One was for vital cement needs. The other, for lubricant and fuel needs, was Mobil. Mobil scheduled deliveries round the clock. Mobil also worked out efficient storage and handling facilities, supplying and installing, eleven 4,000 gallon storage tanks plus high speed pumps.

What you can expect from Mobil on your job

Mobil can help *you* meet the demands of time, efficiency and profit. Mobil does this by providing expert assistance in every phase of your operation affected by petroleum products. Mobil gives you the benefit of 1) engineering service, 2) quality products, 3) close relationship with engine builders 4) lubricant and application analysis and 5) convenient location of its bulk plants for prompt delivery. For help with your own operation, write to us.



MOBIL OIL COMPANY, 150 East 42nd Street, New York 17, New York

Circle 53 on Reader Service Card

New D-120 PAYDOZER



converts into tractor-shovel

LOADER or DOZER . . . which one do you use? Or, do you use both? If so, here's an important money-saving option . . .

Now you can get both, a pusher-dozer and a loader, in one machine to help reduce your equipment investment. Two outstanding, high-production units for little more than the price of one!

The new Hough D-120 "PAYDOZER" is a powerful, rubbertired tractor for bulldozing, push-loading and towing. An optional conversion package is available to change it into a tractor-shovel in a relatively simple and economical manner. The change-over can be completed in less than two 8-hour working days.

AS A DOZER — The big D-120 weighs 54,000-lbs. and is powered by a 300-hp. turbo-charged diesel engine that gives it a higher horsepower-to-weight ratio than any machine in its class. Its heavy-duty blade is 11'-8" wide (12'-4" at cutting edge) and 4'-8" high, has three-way hydraulic powered action — lifting and lowering, forward and backward pitch, and 10° tilt to either side.

AS A TRACTOR-SHOVEL — The H-120 (12,000-lb. operating capacity) is a proven "wonder on wheels" because of its greater power, longer reach, higher dump and better visibility. Power assist on all controls — steering, braking and shifting — helps this unit set new performance records for output, economy and operating ease.

There are many additional design and performance features in the new D-120 "PAYDOZER" that a nearby Hough Distributor would like to explain to you. Contact him or return the coupon for complete details.

THE FRANK G. HOUGH CO. 706 Sunnyside Avenue Libertyville, III. Sussidiary — International narveter Company Send full data on the Model D-120 "PAYDOZER" City State 4-G-2

Circle 54 on Reader Service Card

CONTRACTS AWARDED...

continued

Guy F. Atkinson Co., South San Francisco, Calif. Substructure for San Pedro-Terminal Island tool bridge over main channel of Los Angeles harbor. California State Div. of Highways, Sacramento. \$2,634,041.

United Builders, Inc., Shawnee, Okla, and Mack Construction Co., Kansas City, Mo. Capehart housing at Minot Air Force Base, N.D. Corps of Engineering. \$3,441,-889.

Perini, Ltd., Toronto, Ontario, Canada. Series of dykes at Little Long hydro-electric plant, Ontario. Ontario Hydro-Electric Commission. \$4 million.

G. L. Tarlton Contracting Co., and J. E. Latta Construction Co., Inc., St. Louis, Mo. Low bidders for improvements in St. Louis flood control district. Corps of Engineers, St. Louis, Mo. \$3,146,710.

Mt. Vernon Contracting Corp., Mt. Vernon, N.Y. Low bidder for section of Seven Lakes Parkway, Rockland County, N.Y. New York State Dept. of Public Works, \$2,-585,529.80.

Radory Construction Corp., West Hempstead, N.Y. Low bidder for reconstruction of 2.4 mi of Jericho Turnpike, Mineola, N.Y. New York State Dept. of Public Works, Albany, N.Y. \$1,228,870.75.

V. N. Holderman & Sons Co., Columbus, Ohio. Construct 10.4 mi of highway and structures in Athens and Washington Counties, Ohio. Ohio State Highway Dept., Columbus, Ohio. \$4,775,241.

Newton & Rushton, Inc., Vadilia, Ga. Treatment building, Milledgeville State Hospital, Milledgeville, Ga. State Dept. of Public Health, Atlanta, Ga. \$2,-479,000.

Blake Construction Co., Washington, D.C. Medical education building, at Richmond, Va. Medical College of Virginia. \$5,248,000.

H. L. Coble Construction Co., Greensboro, N.C. Capehart housing at Turner Air Force Base, Albany, Ga. Corps of Engineers. \$5,715,741.

continued on page 57

Major Equipment Manufacturers specify DIAMOND Roller Chain



• Your DIAMOND Distributor has all types and sizes of roller chains in stock. See the Yellow Pages of your phone book under "Chains" or "Chains, Rol-ler" . . . or write the factory for new Catalog No. 760 and address of your nearest DIAMOND Distributor.

DIAMOND Roller Chain.

As have many other leading equipment manufacturers, Parsons selected DIAMOND because of its proven strength . . . its day-in-andday-out dependability under severe operating conditions. There's no time for downtime when there's digging to be done!

DIAMOND CHAIN COMPANY, INC.

A Subsidiary of American Steel Foundries

Dept. 418 • 402 Kentucky Avenue, Indianapolis 7, Indiana

Offices and Distributors in All Principal Cities



Circle 55 on Reader Service Card

YOUR BUSINESS IS IN THE BALANCE . . . and bearing

failures can work against you. That's why it's important to specify New Departure ball bearings and Hyatt roller bearings for your fleet. They provide reliability, the kind of worry-free, trouble-free service that helps to cut cents-per-mile costs and assure on-time delivery. N/D and Hyatt are leaders in bearing research, and together are the world's largest manufacturer of bearings for original equipment and replacement use. Their experience has produced high quality, durable bearings which set standards for the industry. These bearings are readily available to you through United Motors Service and its strategically located bearings warehouses throughout the country. So when you replace bearings, be sure you get the best fast. Get New Departure and Hyatt from your United Motors Service supplier.







New Departure and Hyatt bearings are distributed nationally through . . . U-M-S





CONTRACTS AWARDED . . .

continued

Ragnar Benson, Inc. Chicago, Ill. Baking plant addition at Chicago. National Biscuit Co., Chicago. \$8,100,000.

Ralph M. Parsons Co., Los Angeles, Calif. Refinery at Managua, Nicaragua. Esso Standard Oil Co., New York, N.Y. Estimated cost, \$10 million.

Johnson, Drake & Piper, Inc., Terre Haute, Ind. Build-lease post office and other structures at Cincinnati, Ohio. Post Office Dept., Cincinnati. Estimated cost, \$7.5 million.

MacDonald & Kruse Construction Co., Montrose, Calif. Third unit of Los Cerritos storm drain in Bellflower and Long Beach, Calif. Los Angeles County Flood Control District. \$5,132,700.

Morrison-Knudsen, Inc., Kaiser Co., Perini Corp., Walsh Construction Co., and FS Contracting Co., Boise, Idaho. Low bidders for Yellow Tail Dam, Montana. Bureau of Reclamation, Denver, Colo. \$39,809,350.

Allegheny Contracting Industries, Inc., Pittsburgh, Pa. Roads and structures in Cuyahoga and Lake Counties, Ohio. Ohio State Highway Dept., Columbus. \$6,989,947.

M. A. Gammino Construction Co., Providence, R.I. Low bidder for Fox Point hurricane barrier, Providence River, R.I. Corp of Engineers, Waltham, Mass. \$8,-178,004.

E and F Construction Co., Bridgeport, Conn. Low bidder for hospital addition at Waterbury, Conn. St. Mary's Hospital. \$5,-080,000.

Hawaiian Dredging & Construction Co., Honolulu; J. H. Pomeroy & Co., Inc., San Francisco, Calif.; S. Haunstrup & Co., Sidney, Australia. Renovate 366 mi of Mount Isa Townsville railroad, Australia. Government of Queensland, Australia. \$5,000,000.

Blythe Co. of Puerto Rico, San Juan. Low bidder for sports stadium in San Juan. City of San Juan Dept. of Public Works. \$3,-950,000.

"PRECISE POWER"

BY CONTINENTAL

IN CONSTRUCTION



"More Power to You" is a fourword summary of Continental's stock in trade. And actually, it tells only part of the story, for Continental provides not only MORE but BETTER power-power that is engineered precisely to its job. Continental builds one or more engine models-for use on all standard fuels-for construction jobs of every type and size. The unmatched breadth and diversification of the Continental line assures precise Red Seal power for every construction application. Not only in this field, but on farm and ranch, in industry and transportation-

ANY EQUIPMENT
IS BETTER WITH
DEPENDABLE
CONTINENTAL POWER



MODEL F-226 (Gasoline)
INDUSTRIAL CLOSED POWER UNIT
73 H.P. at 2400 R.P.M.

Continental Motors

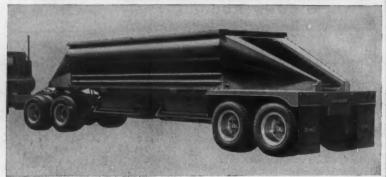
Corporation

MUSKEGON, MICHIGAN

Circle 57 on Reader Service Card



Report from Booming Texas...



Legal Payloads Increased to 24 Tons in Texas with Gar Wood Hoppers

Texas contractors can now legally haul reduces tare weight, and Gar Wood's 24 tons of payload by using a 20-cubicyard Gar Wood semitrailer with a tandem axle tractor.

This payload increase is possible because Gar Wood has eliminated the dead weight of conventional trussframe construction. Gar Wood's exclusive Mono-Shell hopper design greatly mounting techniques distribute more load over a much greater axle span.

Gar Wood hopper trailers are available in a wide range of open and enclosed models for train and semitrailer operation, with a choice of seven types of discharge gates for every hauling need.

FORT BEND DRAINAGE DISTRICT PICKS GAR WOOD DUMPS

Thirty miles southwest of Houston, the Fort Bend County Drainage District is



using three Gar Wood dump bodies.

Gar Wood is the world's first and largest producer of dump truck equipment. Job-proven on thousands of trucks, handling every type of material, Gar Wood dump bodies usually outlast the truck itself. And the Gar Wood line of medium and heavy-duty hydraulic hoists allows a truck to be specifically designed for specific hauling requirements.

Gar Wood truck equipment is more than just"ruggedly built." It is designed with scientific precision for light weight and the utmost resistance to stress and strain.

DALLAS GOES GAR WOOD FOR MUNICIPAL DITCHING

The city of Dallas uses four ditchers to handle noncontracted work within the city limits. All four are Gar Wood-Buckeyes.

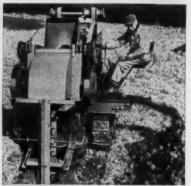
These machines are operated primarily by the Dallas Water Construction Department to ditch for new water lines. A Buckeye 308 is employed when the digging is through hard limestone rock. A Buckeye 407 is used primarily



in dirt. Two Buckeye 160's (see photo) are used for all-purpose ditching in all types of soil.

GAR WOOD WINCH SERVES AUSTIN COUNTY DRAINAGE DISTRICT

A Gar Wood 30,000-lb. winch, mounted on a self-locking oil field truck body, is being used to pull trees, load low boys, and for many tasks in bridge construction in the Austin County Precinct 3 Drainage District, Gar Wood is the world's largest manufacturer of both stationary and truck-mounted winches.



Buckeye 403 called "Best in close quarters"

"The Gar Wood-Buckeye 403 is the best machine made for close-quarter ditching," says Jack Kennemer, owner of the People's Trenching Service of Garland. Kennemer owns two 403's plus a Buckeye 308. His work is primarily in Central and North Central Texas, in terrain varying from caliche to gumbo.

"In tight work the 403 always gives us the proper depth of cut," he says. "It is compact, easily transported, and its operating cost is extremely low. It's a darn good little machine-the ideal machine for fast, accurate ditching in close quarters."

Houston Buys Load-Packer after Comparison Tests

Refuse collection in Houston is performed by a fleet of 29 Gar Wood Load-Packers. Many of the units are new -purchased after comparison tests of packer bodies by an independent Texas research lab. More Gar Wood refuse collection bodies are in service today than all other makes combined.

GAR WOOD'S AT WORK!

Dallas Contractor Rips Through Rock with Seven Buckeye Ditchers



GAR WOOD-BUCKEYE 407, owned by Ray F. Smith & Son, Dallas general contractor, cuts a straight, clean ditch through rocky Texas terrain. This ditcher is one of seven Buckeyes owned by the contractor.

Around the areas of Dallas and North Central Texas the terrain is rocky, much of it hard limestone. To ditch profitably through this ground you need a ditcher with both rugged construction and plenty of digging power.

Dallas contractor, Ray F. Smith owns seven such machines—all of them Gar Wood-Buckeyes. "Two-thirds of our work is in rocky terrain," says Smith, "and Gar Wood-Buckeyes make the best machines for our kind of work. Each one is designed for fast, profitable operation."

Smith's machines are getting a real workout (the Dallas area is growing fast) but maintenance costs for his seven Buckeyes have been extremely low—one important reason why Smith has gone exclusively Gar Wood-Buckeye.

There are other reasons. Every major engineering development in ditching for the past 68 years has been found first on Buckeye ditchers. Today, Gar Wood continues to set the standards in the field. From mammoth pipeliners to small utility machines, Gar Wood-Buckeye ditchers are setting records for high production, low maintenance, and long, trouble-free operation.

More and more contractors, like Ray Smith, are realizing that whatever the job, no other ditching machine can match a Buckeye for performance, production, and profit.

Fort Worth Contractor Calls Buckeyes

"FINEST MACHINES I'VE EVER USED!"

"For ditching through this Texas chalkrock, there's no question about it— Buckeyes are the best machines I've ever used."

This statement by John Ratliff, General Manager of the Glade Construction Company of Fort Worth, is typical of the high praise, contractors across the country have for Gar Wood-Buckeye ditchers.

Ratliff is currently using two Buckeyes, a 315 and a 307, for general construction ditching in the Fort Worth and Austin areas. He has been using Buckeyes continually for more than 18 years.



Ratliff's satisfaction with Buckeye ditchers is the result of Gar Wood's constant engineering efforts to help contractors make a substantial profit—by giving them far more ditching production at far less cost.

Circle 59 on Reader Service Card

GAR WOOD INDUSTRIES, INC.

Wayne, Michigan . Findlay, Ohio

FORMING COSTS

with the Versatile

SUPERIOR COIL TIE SYSTEM

NOW Featuring the
NEW "BOND-FREE"
PLASTIC COIL CONE

Cannot adhere to concrete! Instant cone removal. Made of tough plastic designed for long life. Distinctive red color. Smaller cone—O.D. only 11/4".

Additional transport

The various types of ties, working parts, and tools which comprise the modern SUPERIOR Coil Tie System provide the speediest, safest, most versatile concrete forming method available today! Any form, no matter how complex or unexpected its nature, can be economically tied using one or more of the SUPERIOR Coil devices. Form erection crews can maintain fast schedules because simplicity and adaptability are built-in. Only the coil tie is expendable. all working parts are returnable for credit. The Cone-Fast Coil Tie now features the plastic "Bond-Free" Coil Cone which threads onto the extended coil of the coil tie as shown above. Cones cannot be knocked off and units can be bench assembled, if desired.

The versatility of this system is shown in a new 6 page bulletin, now available . . .

Request a copy of BULLETIN CTS-1



SUPERIOR Concrete Accessories, Inc.

9301 King St., Franklin Park, Ill. (A Suburb of Chicago)

New York Office 39-01 Main St., Flushing 54, N. Y. Houston Office 4101 San Jacinto, Houston 4, Tex.

Circle 60 on Reader Service Card

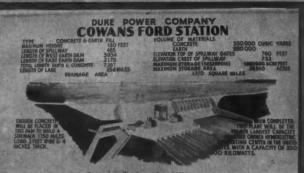
Pacific Coast Office and Plant 2100 Williams St., San Leandro, Calif.

Four Drills
On Side-Boom Cat
Speed Trenching

PICTURE MONTH

A Gardner-Denver Quadrill mounted on a side-boom Cat D7 bores four 25-in, holes 8 ft deep into lava rock on a section of the Alberta-California pipeline. Contractor H. C. Price Co. rigged the drills with the help of San Francisco supplier George P. Philpott Co. Powered by two 600-cfm compressors, the drills are mounted on a 7-ft-long pipe frame suspended from the tractor's 18-ft boom. Air rams on lower arms position the drills. The rams are controlled from the operator's platform.

How to drown a valley-



DUKE POWER COMPANY'S CEDARAPIDS PLANT

- 42"x 48" Single Jaw Crusher Primary
- e 5'x12' Inclined Scalping Screen
- 4¼' Symons® Standard Cone Crusher
- 4' Symons Short Head Cone Crusher
- e Two 5'x14' Horizontal Vibrating Screens
- e One 4'x12' Horizontal Vibrating Screen
- One 5'x12' Horizontal Vibrating Screen
- e 40" x 16'6" Heavy-Duty Model CSF Feeder
- 13 "Strigid" Lattice Frame Conveyors
 (Symons—a registered Nordberg trademark)

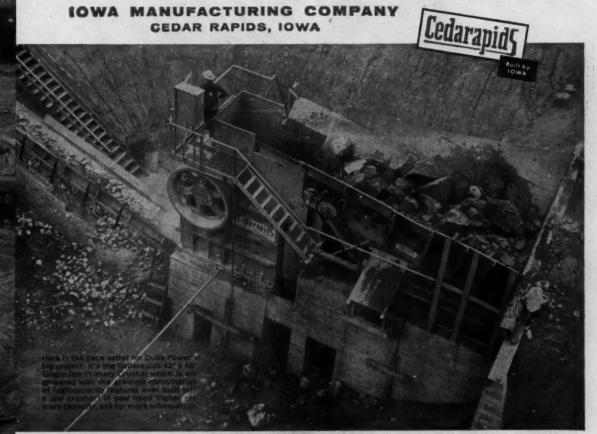


with Cedarapids production

300 TONS PER HOUR of 100% crushed aggregate! That's the way to get a dam job finished in a hurry ... and that's exactly what Duke Power Company is doing with this cleanly-engineered Cedarapids Stationary Plant. The job is the Cowans Ford hydroelectric project, 22 miles northwest of Charlotte, North Carolina, on the Catawba River. Duke Power Company is supplying its own needs for strict specification aggregate. Crushing 90% granite and 10% diorite, with the 42° x 48° jaw crusher set at a 6° opening, they are producing four sizes ... -6° plus 3°; -3° plus 1½°; -1½°

plus 3/4"; and -3/4" plus #4.

A different dam job, or a highway job, or any other job requiring aggregate, demands an entirely different crushing plant set-up... and that's where you profit with a Cedarapids-Engineered Plant. Cedarapids-Engineering means a plant tailor-made for your specific conditions, with each component production-balanced with all the others to assure highest capacity at lowest cost per ton. Your near-by Cedarapids Dealer can explain the advantages of Cedarapids-Engineering, or write direct to:



How to get a

CEDARAPIDS-ENGINEERED

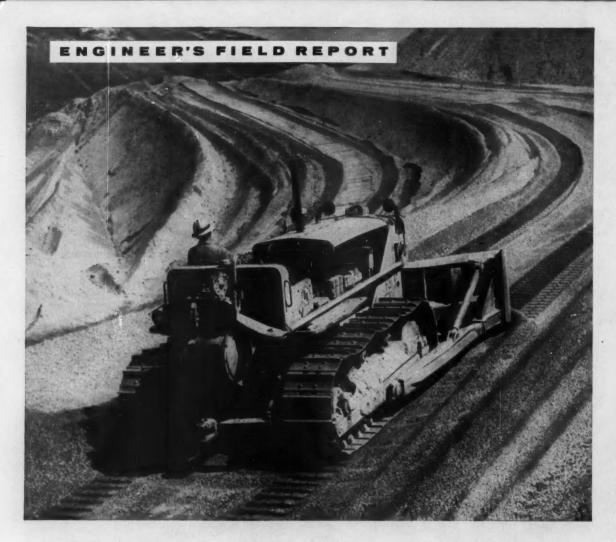
STATIONARY PLANT

that's "tailored" to your job



Gentlemen: Please send details about Cedarapids-Engineering assistance for my stationary plant operations.

8-161N



No lost time—No replacement parts with RPM Tractor Roller Lubricant!

Tractor equipment of Gibbons & Reed Construction Co., Salt Lake City, operates in extreme heat, cold, dust and moisture. Yet, despite severe working conditions, track rollers and bearings have given remarkable service using RPM Tractor Roller Lubricant.

"We've used 'RPM' for over 10 years," reports Master Mechanic Harold Higgins.
"... it has done a fine job, and we've definitely saved on replacement parts. This lubricant seals out dust and moisture to keep bushings in good shape.

We use RPM Tractor Roller Lubricant on over 60 pieces of heavy construction equipment."

Gibbons & Reed is one of Utah's top general contractors with construction jobs throughout Western states. Their maintenance policies are the result of over 25 years field experience. As Harold Higgins says: "You can't meet schedules when equipment is down... that's why we rely on 'RPM' to help keep 'em rolling!" RPM Tractor Roller Lubricant resist wear because it flows evenly to all bearing surfaces, lubricates and retards rust formation. Its special compounds create a tough, wear-resistant film that seals out moisture and dirt.

Why not try RPM Tractor Roller Lubricant? Chances are it can help reduce down time, lengthen equipment life for you. Just call your local representative or write any company listed below:



STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso California oil Company, Perth Amboy, New Jersey - Denver, Colorado

TRADEMARK "RPM" AND CHEVRON DESIGN REG. U.S. PAT, OFFS

Construction News in Pictures ...

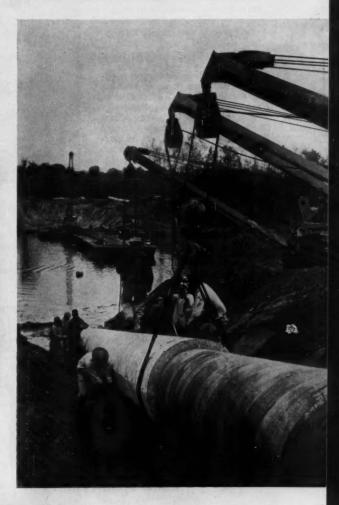
Pulling Pipe

Side-boom crawler tractors walk a section of 36-in. pipe to the edge of the Tombigbee River in Alabama. The line was partially barged and partially pulled across the river by a crane on the other side. Transcontinental Gas Pipe Line Corp. is laying its third trunk line between their gas field in Texas and New York City.



Caisson Cutting Edge

A crew places and compacts sand backfill within the steel cutting edge of a caisson that will house a boiling water reactor at Eureka, Calif. The concrete caisson liner, to be poured in lifts atop the cutting edge, will be 4 ft thick. The caisson will be sunk 85 ft. Bechtel is building the reactor for Pacific Gas and Electric Co.



Night Shift

Floodlights bathe the giant steps of Greers Ferry Dam in Arkansas as crews of a joint venture sponsored by Morrison-Knudsen work round the clock to place 13,000 yd of concrete per week. A 2,100-ft-long cab'eway handles 8-yd concrete buckets. So far, Red River Builders have placed about half of the 850,-000 yd of concrete that is required.

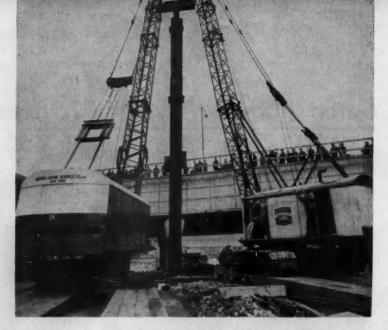


continued on next page

CONSTRUCTION NEWS IN PICTURES . . . continued

Hefty Column

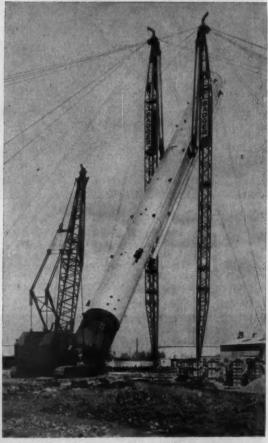
An equalizer distributes load evenly between two cranes erecting first 44-ton column of the George Washington Bridge bus station in New York City. Bethlehem Steel Co. will erect 6,700 tons of steel for the Port of New York Authority. The two-block-long, three-level bus station will straddle a 12-lane expressway feeding the bridge.





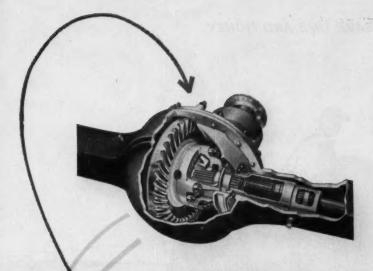
Long-Span Frames

Three Link-Belt truck cranes team up to erect first of seven 15-ton rigid frame bents during construction of the Georgia National Guard Armory at Savannah. Each bent spans 75 ft. Owen Steel Co., Columbia, S. C., fabricated 310 tons of Bethlehem steel for the project. Steel Erectors, Inc., handled erection for contractor Hugh Jackson.



Big Lift

Twin gin poles and a Manitowoc crane erect a 227-ft-long, 300-ton fractionating column at a new Sinclair-Koppers Chemical Co. styrene plant near Houston. Badger Manufacturing Co. of Cambridge, Mass., handled the lift, which took about 7 hr. The tower is set atop an 84x 102-ft monolithic base slab that took 1,600 yd of concrete.



Rockwell-Standard°
Traction Equalizer...

Settion Dangs

where there's traction!

The Rockwell-Standard Traction Equalizer provides a substantial increase in tractive effort to the wheel with the best road adhesion. It is effective on a vehicle even if one pair of driving wheels has no traction. Provides safer, surer performance on or off the highway...easier control on curves, slippery pavement and soft ground. Eliminates tendency of vehicle to swerve when one wheel suddenly loses traction.

Automatic actuation. Doesn't depend on driver to start it working. Whenever one wheel tends to turn faster than the other, Traction Equalizer starts to work.

Tailored to your needs. With multi-drive axle vehicles, each axle may be equipped with Traction Equalizer units. No matter where your vehicles operate—on or off the highway—the Rockwell-Standard Traction Equalizer gives your vehicles better traction.

Self lubricating. Traction Equalizer automatically picks up standard axle lubricant and works it through unit.

Less muintenance. Normally, Traction Equalizer requires no maintenance between axle overhaul periods. It also cushions impact of heavy loads on tires, shafts and gears.







Another Product of ...

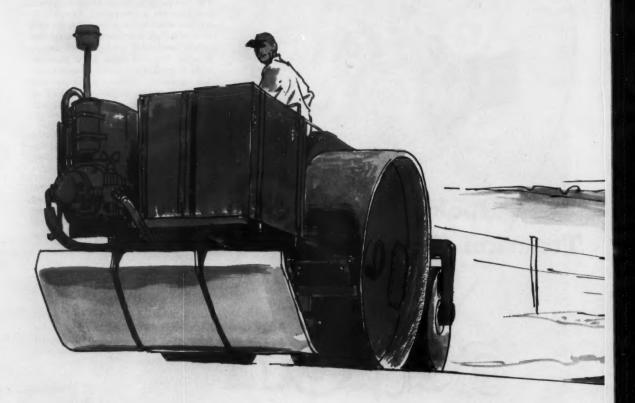
ROCKWELL-STANDARD

CORPORATION



Transmission and Axle Division, Detroit 32, Michigan

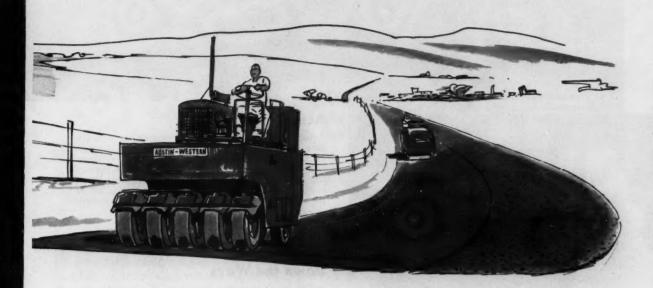
Circle 67 on Reader Service Card

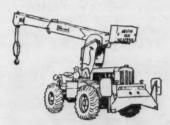


A-W ROLLERS FINISH TOUGH-SPEC COMPACTION JOBS EASY AS 1-2-3

And they do it by any of three compacting methods—static, vibratory and pneumatic. Take this asphalt surface job as an example. First, the variable weight 3-wheel makes the initial breakdown pass with its heavy steel-wheel static pressure. Second, the new PR-11 9-wheel, 4 to 11-ton pneumatic tired roller performs the intermediate stage with a kneading action which simulates heavy traffic loads and reduces voids to approximately 3%. Third, the 2-wheel A-W tandem roller, again with variable weight, wraps up the whole job and leaves a smooth-as-glass finish. The granular subbase was compacted by the Austin-Western Roller Compactor, which uses a combination of both static and vibratory compaction for simultaneous surface sealing and low-level keying of voids.

Whatever your compaction job, there is an A-W unit to help you meet the toughest specs, today's and tomorrow's, in fewer passes. They are top-quality machines built to outperform and designed for easy maintenance—two of the reasons Austin-Westerns save you time and money!





A-W HYDRAULIC CRANES

5 models. Capacities to 11 tons. Selfpropelled and truck or stationary mounting. "Live" hydraulic booms extend up to 48 ft. on some models.



A-W MOTOR SWEEPERS

2 models: 2-yd. Model 40; 4-plus Model 60. Safe, easy front steer; full visibility. Simplified design; broom and hopper in rear.



A-W POWER GRADERS

9 models; all-wheel drive and steer 4-wheel Pacers and 6-wheel Supers. Weight classifications to 30,000 lb., power ranges to 165 hp.

Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Circle 69 on Reader Service Card





Across the River

A barge-mounted rig is ready to pick up a 50-ft-long section of 20-in. cast iron pipe with a strong-back beam equipped with four stringers. A diver will help position the pipe section in a 9-ft-deep trench across the Monongahela River near Pittsburgh. The Monongahela and Ohio Dredging Co. is installing the 900-ft-long line made up of 50 sections.

Down the Ways

A 600-ton liner section for a vehicular tunnel under the Elizabeth River at Norfolk, Va., makes a big splash at its launching. The ten 30-ft bands of steel plate making up the 33-ft-dia tube were welded flat and wrapped over a rolling jig. The all-welded structure was fabricated by Wiley Mfg. Co. with Lincoln Electric submerged-arc welding guns.

Takes A Big Bite

This Bucyrus-Erie 1054-WX wheel excavator chews overburden at a rate of 63 yd per min. The excavating wheel rotates at 7 rpm to take a 9-yd bite. The 1,500-ton machine, working at an Illinois strip mine, stands 176 ft high. Two 54-in. Raybestos-Manhattan conveyors — a 203-ft-long digging ladder and a 732-ft-long stacking belt—handle excavated material at high speeds.







with a 3-yd, bucket loads out rock at the quarry face of the Lincoln Stone Company, Joliet, Illinois.

ML-309 Moto-Loader with **MOTO-MATIC*** does more for you.

*The new transmission with strait-thru, 4-speed, full power shifting

At that critical moment when you are coming out of the pile or bank with a load, and want a higher speed for longhaul carry—that is when you will appreciate Lorain's Moto-Matic transmission.

A flick of the hand power shifts into all speeds-even from second to third-without stopping. You truly have a time-saving, 4-speed transmission, not 2 sets of 2 speeds as on other makes. You don't have to make a speed range decision and then stick with it even though it may be too low for maximum travel speed or too high for digging effort. Quick as a wink you can use all 4 speeds to put more material into the trucks.

Other "Moto-Matic" advantages.

1. Transmission ratios and planetary axle drive ratios are coordinated for real, balanced performancewhether for digging tractive effort or high speed travel.

- 2. Change direction and speed with one foot . . . no hands required as one foot alternates between two pedals to select forward or reverse and speed. Both hands freed for other controls.
- 3. Easy to service because there are fewer parts than other designs-easier to get at, with standard tools.

This new idea in power-shift transmission is a major reason for the outstanding performance of the Lorain ML-309 Moto-Loader. But it is just one reason. There are many more. Your nearby Moto-Loader distributor will be glad to give you all the facts.

THE THEW SHOVEL COMPANY, LORAIN, OHIO

LORAIN

DOES MORE **FASTER · FOR LESS** PLANTS in Lorain and Elyria, Ohio.

PRODUCTS-Power shovels, cranes, draglines, clamshells, and hoes on crawlers from 3/6- to 21/2-yard capacity · Cranes from 7 to 80 tons . . . on crawlers, and as rubber tire Moto-Cranes, and Self-Propelled Cranes · Rubber tire front-end Moto-Loaders in 11,000-lb. to 18,000-lb. lifting capacity. OUTLETS-Lorain products sold and serviced by 249 distrib-

utor outlets throughout the world.

NO OTHER TRUCK

can power its way thru sandier, muddier going... haul away bigger, more torturous loads... yet stay out in front on the road so often!



This giant, diesel-powered "230" model can haul gross combination loads in excess of 100,000 lbs. Extra heavy-duty frame and front end.

INTERNATIONAL

INTERNATIONAL gets you in and gets you outfast: Higher average road speed of powerful, true-truck INTERNATIONAL V-8 engines cuts down trip time, picks up as many as two extra 40-mile round trip hauls per day. V-8's up to 257 hp; gas Sixes up to 212 hp; diesels with 695 lb.-ft. of torque and up to 262 hp.

INTERNATIONAL pulls you through the heaviest going: Newly-designed, rugged IH through-drive tandem axles handle big payloads without letting you down. Induction-hardened IH axle shafts are up to 10 times more resistant to shock loads . . . eliminate "fan out" and the possibility of fragments in the differential.

INTERNATIONAL carries bigger loads: These new lightweight IH bogies (up to 156 lb. lighter), plus heavy-duty springs and frames, give you bigger payloads, more savings in weight. Three new tandem axles now avail-

able, in 30,000, 34,000 and 38,000 lb. capacities. All three are backed by a 100,000 mile warranty!

Nothing could be more important to an operator working on a ton-mile rate than these proven built-for-work features. See the INTERNATIONAL Truck Dealer or Branch nearest you, for your next tough job. And remember this: INTERNATIONAL has a nation-wide network of sales and service centers to keep you operating. International Harvester Company, Chicago.

Tight Schedule? Get Shipment in 24 Hours! INTERNATION-AL'S unique dump truck pool has models in popular sizes and specifications ready for shipment to you in 24 hours. Your IH Dealer is set up to handle your needs for emergency equipment. Just pick up the phone and call him.



rlinder INTERNATIONAL R-line models have GVW ratings up to 53,000 lbs. Sure traction underneath your payload. Powerful 6-cy



Power-geared for a more profitable operation. There isn't a tougher, more dependable V-8 built for shortening round-trip time!

TRUCKS WORLD'S MOST COMPLETE LINE



Construction 'Round the World ...

In England

Two Liebherr 50 HB universal cranes with hydraulically-operated booms perch atop a building going up on the Thames Embankment in London. The reinforced concrete structure will be the tallest building in Europe. Each crane climbs a shaft enclosing its tower as the work progresses.





In Iran

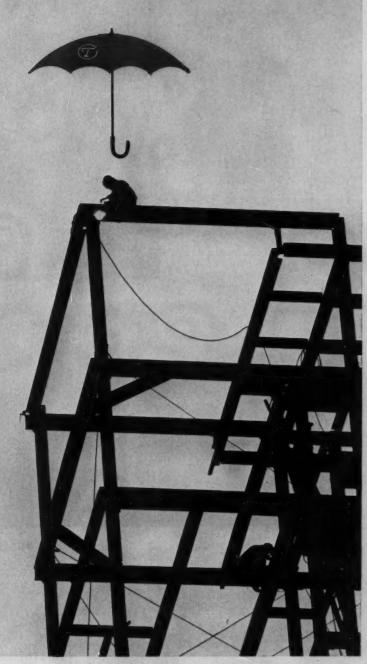
Karadj Dam near Teheran reaches the 500-ft mark on its way to an ultimate height of 590 ft. Contractor on the \$45-million project is Morrison-Knudsen International Constructors, Inc. Two cableways handling 8-yd buckets so far have placed more than 865,000 yd of concrete out of the 1,000,000-yd total that will be poured to complete the massive structure.

In Canada

Four steel falsework towers topped by pairs of glue-laminated bowstring trusses hold forms for one of the twin arch ribs that span 350 ft to carry the Trans-Canada Highway over the Capilano River. Perini Pacific Limited poured the 600 yd of concrete in each arch rib in a continuous 33-hour pour with an 8½-ton capacity aerial tramway.



continued on page 76



How safe? Let The Travelers safety experts tell you. They'll study safety problems on your jobs to help keep accidents to a minimum and to help keep you out of lawsuits. When someone does get hurt, Travelers handles Workmen's Compensation and

Public Liability claims for you—swiftly! You can also get Bid Bonds, Builders' Risk Insurance, Contractors' Equipment Floaters—in fact, practically any kind of business insurance you need—all from The Travelers. See your Travelers man.

THE TRAVELERS Insurance Companies

NARTFORD 15,

Circle 75 on Reader Service Card

continued

In Australia

A 25-ton Koehring 304 (left) and an 18-ton Jaques Lorain truck crane jockey a 90-ft-long, 6-ft-dia steam pressure vessel onto its cradle at an asbestos cement plant in the industrial suburb of Brooklyn, Victoria. Both cranes are part of a large fleet of mobile equipment operated by Walter Wright Industries, Ltd., of nearby Flemington.







In Venezuela

This 5½-mi-long prestressed concrete bridge under construction across Lake Maracaibo will be one of the largest structures of its type when completed. Its 1,310-ft center span will clear 150 ft above water to permit passage of oil tankers. Venezuelan contractor Precomprimido C. A. is building the \$100-million structure.

In Holland

Barge - mounted cranes unload dredged material from scows and place it in perimeter dike enclosing polder of the Zuider Zee. Heavy stone rip rap on top of timber mats protects the earth embankment. Draining the lake will complete the vast reclamation project and net the Dutch more than 100,000 acres of arable land once covered by sea.





REO TANDEMS... the talk of the transit mix business

Word gets around fast. Reo's rear axles can haul more payload—legally—because of lower rear chassis weight and unique front axle placement. You get another 400 to 600 lbs. of payload capacity with Reo's low cost, flywheel power take-off—installed as an integral part of

the chassis engine drive. But that's not all. Reo's *Gold Comet* engine goes the life of the truck without cylinder re-boring or block replacement—thanks to exclusive "wet sleeve" construction. *ReoMatic transmission*—fully proved, fully automatic—helps speed delivery schedules by eliminating power interruption and gear shift guesswork; prevents harmful engine lugging, too, and minimizes the chance of drive line damage. Better get the complete Reo story before you buy.

gold Standard of Values

REO MOTOR TRUCK DIVISION . THE WHITE MOTOR COMPANY, LANSING 20, MICHIGAN



Primacord

your safest method of initiating explosives whenever stray electric currents may be encountered

This well-recognized hazard is minimized when Primacord Detonating Fuse is used – as the initiator throughout the blast.

Primacord cannot be detonated by extraneous electric currents . . . minimizes the possibilities of premature detonation from such causes. On at least one occasion, a Primacord trunkline failed to detonate when struck by lightning! This is one important reason why more and more blasters are adopting Primacord for open pit and construction projects . . . and for underground operations. Because of exposure time, Primacord is of particular importance when holes must be preloaded.

But when you are ready to blast, Primacord deto-

nates at almost four miles per second. It has a minimum initiating strength of a blasting cap along its entire length. Primacord is relatively insensitive. It cannot be set off by sparks — or by normal vibration, friction or shock. It has the added advantage of being simple, easy and economical to use.

A Primacord downline saves time and labor costs when loading; simplifies multiple priming and deck loading operations. As a trunkline, it will connect all holes for instantaneous or surface delay initiation. Primacord is available in a number of standard and special types developed to meet varying needs. For further information, consult your explosives manufacturer or write

THE ENSIGN-BICKFORD COMPANY

Simsbury, Connecticut • Since 1836

THERE IS A TYPE OF PRIMACORD® FOR EVERY TYPE OF BLASTING



Free! NEW GUIDE AND CONDENSED MANUAL: 'PRIMACORD DETONATING FUSE. WHAT IT IS ... HOW TO USE IT.' ASK YOUR EXPLOSIVES MANUFACTURER OR WRITE US GIVING YOUR COMPANY NAME.



CATERPILLAR REPORTS

On the following pages:

Wheel Tractors on Trial
Heavy-footed Operators Wanted
How to Buy a Used Machine
What Size Machine for You?
Special Report on Custom Track Service
Wheel Loader Does a Crawler's Job



Power shift 630 and 631... nine speeds with

For six weeks the powerful new Cat 630 and 631 wheel Tractors were on trial before the toughest jury in the construction business. These new power shift machines and the straight shift DW21 were put through their paces before 1300 contractors who gathered to see for themselves if these units lived up to their promise.

Now the evidence from that demonstration is in. Electronic scales and stop watches wrote the story in ledger-book terms. The facts are here for you to judge.

The three machines worked in sandy loam on a 1500-foot haul under identical conditions. They hauled more than 240 loads. The Cat power shift transmission proved how it automatically adapts machine power to job conditions and thus boosts production. In the demonstration, it helped the 631 move 18% more dirt than the DW21-and at the DW21's low cost per yard—the lowest in the business. Complete data are listed in the table on the next page.

POWER AUTOMATICALLY MATCHED TO THE JOB

Contractors who watched the new 631 and three-axle 630 got a new

feel for the things that contribute to production. A new 420 HP Cat Engine provides the power for these rigs that have a heaped capacity of 28 cu. yd. (The 630 when used with 482C Scraper handles 35 cu. yd. heaped.) But capacity and power are only part of the reason for their superior performance. Even more important is a totally new concept in power shift transmissions. The 630 and 631 automatically adjust themselves to underfoot conditions thus providing top usable speed at all times. With a single lever the

operator can make three shifts that result in nine speeds. And a shift indicator tells him when to shift!

In each speed range selected by the operator, the transmission provides three automatic shifts. Thus, by moving the lever to first range, the new 630 or 631 leaves the cut in torque divider drive-25% of engine torque being multiplied by a converter before joining the 75% of torque that is transmitted directly to the range transmission. As speed increases, the transmission automatically shifts to direct drive, then to overdrive for the most efficient use of power and for maximum speed. The same cycle is repeated in each speed range and downshifting is also

the
evidence
is in
...you
be the
judge



three shifts, boost production

This new Cat power shift makes these machines so easy to operate that the demonstration, though it proved their superiority, does not indicate the full advantage you'll get on the job. Contractors who operated the machines were pleasantly surprised with the easy shift. They could feel the unit shift, could see each shift on the shift indicator but all shifting, up or down, was smooth and quick. From a dead stop, the machines were automatically shifting out of torque divider drive in about 15 feet; were in overdrive in less than 100 feet and showing the operator when to change to second range. Most of the contractors soon realized that this job matching ability of the 630 and 631 was going to pay off in perhaps a less spectacular way. They realized that here were machines whose production would not be greatly affected by the time of day. Operators don't tire nearly as much and would still be moving the machines at the most efficient maximum speed at the end of a shift as well as at the start. Although the production shown in the demonstration was good, you could expect even better results on your own job when results were checked at the end of a full day or the end of a week.

FAST, EASY OPERATION

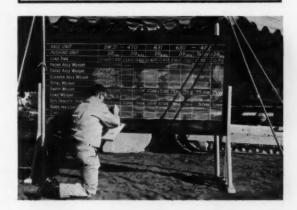
There are other ways, too, in which these new Cat machines make it easier for an operator to maintain top production. Cable controls are air actuated and take only half the effort to operate as formerly. Trying the machines themselves, the contractors found (continued on next page)

HERE ARE THE FACTS

Material: Sandy loam, 3000 pounds per bank cubic yard
Conditions: Haul road firm
Distances and Grades: Haul, 750 feet, 2% favorable grade
Return, 750 feet, 2% adverse grade
Tracter-Scraper: DW21 631 630-482 630-482

Tandem D9s Pusher: D9 09 1 09 Ave. Load Time: 0.60 0.60 1.00 0.50 20.8 22.8 26.3 28.1 Ave. Load: Ave. Cycle: 2.1 1.95 2.45 2.0

These are cumulative, based on 16 demonstrations. The Caterpillar 630 Tractor-Scraper, and the DW20 Tractor, a straight shift machine, were not included in the demonstrations.





COMMENTS FROM A TOUGH JURY

Q: What impressed you the most about the 630 and 631?

George H. Langenfeider, Pres., C. J.
Langenfeider & Son,
Inc., Baltimore, Md.:
"When other big
machines hit tough
spots, they bog
down because the
operators cannot
shift fast enough.

The 630 and 631 automatically shift to meet job conditions. They should roll right on through and help keep production high."



Hugh Steele, Pres., Hugh Steele, Inc., Atlanta, Ga.: "These machines lookmuch stronger, bigger and faster. The air-actuated cable control should cut down on wear because it is either

in or out. The steering looks like a big improvement, too, because it is simpler and more rugged."



C. D. Missimer, Job Supt., Albert Bros. Contractors Inc., Salem, Va.: "They ride better than anything I've ever been on. It's just natural if you keep an operator comfortable and happy,

he'll be able to produce better. Not only do they go faster, but an operator can stay with them without getting beat up."



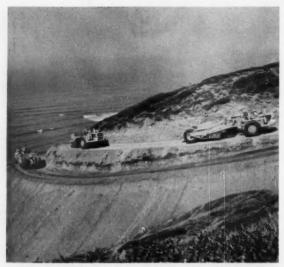
V. N. Green, Pres., V. N. Green Co., Charleston, W. Va.: "The power shift ought to speed up cycles and it looks more trouble-free. Another thing, I like the easy servicing. Both ma-

chines appear real easy for the mechanics to service. These machines will get back on the job fast. And that's important." (continued from previous page)

that not only are they easy to operate, but there is still a built-in feel of control. An improved cable saver automatically disengages the control to prevent double blocking. Many observers felt that the big, lowbowl scrapers load easier, more evenly. Test results backed this feeling: same pusher, same load time as the DW21 but 10% more load. They observed the even boiling action that breaks the load front and back leaving practically no void behind the apron. Trying the new two-jack steering on the 631, they commented on the automotive feel-of-control that has long been famous on the DW21. The three-axle men were particularly pleased with the steering on the 630 and its shorter turning ability.

Finally, the contractors at the demonstration saw why these new haul units are the easiest to service ever designed. As factory personnel pointed out, the engines are very accessible and the complete tractor is unitized. The fan is attached to the radiator as one unit. The engine can be removed without disturbing other components. Both transmission units, torque divider and range transmission, can be removed individually without disturbing the engine. On the 631, the dash swings out and the crankcase guard is hinged to expose the engine for service work without removing it. On the 630, even the fenders are hinged for easier servicing of the big, new design 29.5 x 35 tires.

As one contractor who saw them in action said. "No matter how you judge a machine, you have to admit these two are great!"



"I BOUGHT FIVE 631s and I think Caterpillar is shortchanging itself," says A. A. Baxter, San Diego, Calif. "My experience on this sewage treatment plant site preparation job indicates that the published figures for this machine are too conservative. I believe I know why.

"When cycles are being checked, operators on the direct drive machines naturally work hard and make all the shifts. During an eight-hour day, they simply can't maintain that pace hour after hour.

"But they can on the 631s. Operators get a lot more out of this machine with a good deal less strain on their part. For example, on this particular job, 1000 feet of the haul is 16% adverse. The operators simply put the 631s in first range and the power shift transmission does the rest. They've found they can travel well over 50% "of the grade in first range overdrive.

"The end result is that I am getting much more yardage per day in comparison with the DW21s than the Caterpillar figures indicated I would."

THE INSIDE STORY

How the new power shift transmission gives nine speeds. . . . Why it likes a "heavy-footed" operator

The power shift transmission on Caterpillar wheel Tractors is unique.

It gives you a torque converter's ability to balance speed and torque to suit underfoot conditions, but for high-speed operation on the haul road it cuts out the torque converter and gives you more efficient direct drive and overdrive. It gives you three manually-selected speed ranges and, in each range, it automatically shifts up or down through three types of drive for a total of nine forward speeds.

Although it is a simple mechanical system, it can be made to shift when not really required. But this can't happen if you keep the accelerator floorboarded. A look at the inside of this transmission (see diagram above) shows you why.

A range transmission is mounted at the rear of the machine and is operated manually with a single lever control. This one lever

Torque Divider
Unit

Direct Drive
Clutch

Overdrive Clutch

Range Transmission

Pevice

gives you three forward speed ranges, reverse, neutral and a special load range.

The automatic transmission is mounted right behind the engine. It consists primarily of a planetary gear set, a torque converter and two hydraulic clutches. It gives three types of drive—torque divider drive (with 25% of engine torque multiplied by a converter and 75% bypassing the converter)... direct drive with output shaft speed matched to engine speed...and overdrive, which is still direct drive, but the output shaft turns 1/3 faster than the input.

The automatic shifting is accomplished by means of a simple mechanical speed sensing device and a hydraulic valve that activates the clutches. A flyball control is driven by the drive shaft. As the machine speed picks up, the flyballs swing out and at a given RPM move the hydraulic valve engaging a clutch to shift up from torque divider to direct drive.

This locks the converter out of the system. At a higher RPM this control system disengages the first clutch and engages a second clutch which changes the gear ratio to overdrive. If the machine slows down, the process is reversed thus giving automatic downshifting. A shift indicator (tachometer) shows when a change in speed range up or down is needed.

Since the automatic system is controlled by speed, it can be made to shift when not actually required. Let up on the accelerator and the transmission will shift down as if the going were getting tougher. The way to keep it most productive is to keep the accelerator floorboarded all the time. Then you'll always have the right speed and power for the job and you'll be taking full advantage of a transmission designed specifically for the kind of machine you're using and the kind of work you're doing.

A used machine can be a Good Buy...if you're careful

By Walter Schubert, General Manager, Royal Equipment Co., Houston, Texas



This rental equipment company buys only used machines. Recently, it earned \$10,000 on a used D6 Tractor before spending a cent on it. Here, this company's general manager tells how <u>you</u> can be sure of top value in used equipment.

We're in the rental equipment business and our machines have to make money two ways.

Obviously, they have to make money for us. And just as important, they have to make money for our customers. That means, at a reasonable rental rate, they have to deliver good performance. If they don't, you know the answer. At the best, we get a squawk. At the worst, we lose a customer.

Now, we rent out only used equipment. That may sound as if we're taking a big risk. But we've found a sure way to buy used machines that do a money-making job both for us and our customers. We buy used equipment only from our Caterpillar Dealer.

Does it pay off? There's one used D6 we bought that earned \$10,000 before we spent a cent on it. And there are others with just as good a cost record.

Our equipment is all either a "Bonded Buy" or a "Certified Buy."* These are machines that the dealer reconditions, classifies and warrants in writing, so we know what we're getting and are protected for the length of the warranty.

We have complete confidence in his Bonded and Certified Buys. In an emergency, we'll even buy one of his used Cat machines without seeing it and have him deliver it direct to our customer's job site.

There are several other reasons we specialize in used Caterpillar equipment. Most of our customers demand it—it has a terrific reputation for doing a job. Upkeep's very low, too, because Cat-built rigs are rugged and, of course, we have the advantage of that warranty period from our dealer. And the equipment retains its higher value; when we want to sell, we can get a good price.

*BONDED BUY — Cat-built machines, carefully reconditioned, backed by the dealer's written bond up to \$10,000, assuring parts and service protection for the warranty period (agreed to at the time of sale). CERTIFIED BUY — a written warranty covering units of any make in good condition. Caterpillar Dealers also offer BUY AND TRY DEALS which include a written, moneyback guarantee agreement on machines not in the above classifications.

How much machine is enough?

Two Florida contractors. One has D6s, the other D7s. Both have the right machine. Here are some ideas on how to make sure you don't choose too little of a machine or too much.

Northwest of Tampa, Lamonte-Shimberg Associates, Inc., uses a D7 to develop homesites on 700 acres of sandy land.

Nearby, J. & J. Land Clearing Co., Inc., Pinellas Park, prepares sites scattered through the Pinellas Park area with a D6. Typical terrain is sandy clay.

Which contractor has the best machine for the work? The answer's easy: both have. For different reasons and for the same reason.

The D7 Tractor is just the right size for the work it does—it can easily handle every task, from rough clearing to fine grading. But any tractor in the D7 size could make this claim. However, the D7 does its work in wet sandy conditions and it holds up. Size and type of machine are only two factors to consider when buying a machine. Unless a tractor also has a predictable service life that is favorable it may be "too little" regardless of its size.

Horsepower and size are only an indication of how much work the machine can do in a given time; it is no indication of how much that work will cost the tractor owner. So, the real question facing equipment buyers is, "what size machine and how much quality do I need?" True quality pays off in long life. For example, this D7, working in wet sandy conditions, has 2200 hours on the lifetime lubricated rollers that have caused no trouble and no rebuilding. The tractor has proven to be big enough, size wise, and plenty "big" when it comes to predictable low-cost operation. The machine stays in the same area for long periods so highway size and weight restrictions don't matter. And it's stayed on the same kind of hard work long enough to determine it is "more than enough" machine in terms of long life and reliability.

On the other hand, J. & J. Land Clearing needs to move its D6s quite often. So the smaller size and weight, which permits easy movement on highways, is important. Also, its owners feel it has all the power needed. Caterpillar dependability keeps the machine going in the roughest work. With 2300 hours on this D6 Tractor, the oil clutch has caused no trouble and doesn't even need adjusting! The lifetime lubricated rollers are still in good condition.

The kind and amount of work you do will determine the size of machine that best suits your needs. The bigger



D7 Tractor clearing land for Lamonte-Shimberg Associates. Size and weight were no problem to this contractor, so he chose a larger machine for extra power and operating speed.



D6 working in sandy clay for J. & J. Land Clearing Co. This machine handles every job it's called on to do, is always available, and its smaller size makes it easy to move from site to site.

machine will produce at lower cost if used to its capacity. But machine size is only an indication of the amount of work it will do. The cost of doing that work must also be considered. This is more difficult to predict. Perhaps the best method is to look at the reputation of a particular make of machine, look at its design-features that will contribute to long life-and look to the dealer that stands behind the product. Your Cat Dealer is a man that can help you in checking the facts. He brings you his knowledge of machines and what they've done for other contractors with similar problems. He can help analyze what it will cost to handle a given amount of work with the machines you are considering. His interest is getting you the best machine for your business since his business is entirely dependent upon customers like you. He knows "how much" machine you need and he'll work with you to determine the best size.



Custom Track Service saves coal stripper \$3298 by adding 3800 hours to track life

A coal stripper, ripping and 'dozing rocky overburden 7 days a week around the clock, was averaging 2300 hours of life before he *replaced* most of his totally destroyed track group parts. At the suggestion of his Cat Dealer, the stripper tried new, larger-size undercarriage parts. By following recommendations of the dealer's undercarriage specialist at 2440 and 4030 hours, the

undercarriage went a total of 6100 hours with only pin and bushing replacements . . . and all but the shoes were rebuildable instead of scrap! Up to this point, Custom Track Service saved the stripper a \$3298 cash outlay; and since he was able to rebuild the links and reuse the pins and bushings instead of replacing with new assemblies, he realized additional savings.

PAST EXPERIENCE



ALL BUT SHOES READY FOR SCRAP PILE AFTER 2300 HOURS

PRESENT EXPERIENCE



COMPLETELY REBUILDABLE EXCEPT SHOES AFTER 6100 HOURS

HOW CUSTOM TRACK SERVICE HELPS LOWER COSTS

Custom Track Service, available only from your Caterpillar Dealer, is designed to help you get the most possible service from undercarriage parts and thus cut costs. Factory-trained specialists are ready to help solve your particular track problems. They can give sound recommendations to help you get the most from your undercarriage.

They can advise you on maintenance . . . help you tailor the many special undercarriage parts and track options available to meet various job conditions. As a

result, costs per hour go down and profit and machine availability go up.

These undercarriage specialists are backed by modern track undercarriage rebuilding facilities manned by experienced personnel . . . by the largest and most complete stock of standard and special application parts available . . . by Parts Exchange Assemblies that keep tractors working and earning.

Check with your Cat Dealer and learn how Custom Track Service can help you to reduce costs.



Lee Vickers (right) and Jewell Finney.

The only machine they had was a Cat 944, so... They did what couldn't be done with (most) wheel loaders

Until recently, you could find pit run iron ore—two inches and less in size—right on the surface of the ground around Gladewater, Texas. So road contractors had plenty of low-cost base material. But in the last few years it has gotten scarce and expensive. Lee S. Vickers and Jewell Finney saw this as an opportunity to go into the rock crushing business. Their Atlas Construction Co. opened a crushing plant in Gladewater in June of 1960.

In their 160-acre pit, they have an almost unlimited supply of limonite iron ore with plenty of hemotite and mortar sand. But before tapping this raw material, Vickers and Finney had a couple of tough problems to solve. First they had to clear 25 acres of pecan and oak up to 20 inches in diameter. The only machine they had was a 944 wheel Traxcavator, bought for use in the crushing operation. This isn't the type of machine they'd ordinarily choose for a tough clearing operation but it was available. They decided to try it. And it did the job, with no trouble.

The next task was preparing the site for the crusher and building a settling basin for water used in washing crushed ore. Again, the rugged 944 handled all the work, doing plenty of really heavy excavating in moving 20,000 yards of rock and gravel and without a hitch.

Now, after putting them in business by handling work that many wheel



After clearing and excavating to prepare the crusher site, 2-yd. 944 Traxcavator now handles all loader jobs at the crushing plant of the Atlas Construction Co.

loaders couldn't do, the 944 is still on the job every day. It excavates, loads the hopper of a 10" x 24" jaw crusher and loads out trucks at the rate of 1200 yards of pit run material a day. As Lee Vickers puts it, "The 944 does everything but crush rock for us!"

How did Vickers and Finney come to choose a Traxcavator? Lee Vickers is a good man to ask. He had 10 years of experience with wheel loaders as city manager of Gladewater, Orange and other Texas cities before joining Atlas Construction Co. He says, "One look at the 2-yd. 944 in action convinced me that the seven years of Cat research that went into it had really paid off. It's the easiest machine to

operate I've ever seen. It's unusually safe, fast and has as much power (105 HP at the flywheel) as we'll ever need.

"We were offered some big discounts to buy other loaders, but we were more interested in long-term economy and steady production than initial price. When I was in city management work I saw the fallacy of buying low bid. Often you have a lot of repair problems and spend much more to keep the machine going than a good machine would have cost in the first place.

"Frankly, we couldn't be more satisfied with the 944, and if we ever expand to the point where it can't handle the volume, we'll get another."

For the best in new and used machines, and the best in parts and service-see your Caterpillar Dealer

Caterpillar Tractor Co., General Offices, Peoria, Illinois, U.S.A.

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co

DIESEL ENGINES . TRACTORS . MOTOR GRADERS . EARTHMOVING EQUIPMENT



You can drill and drive with a Jaeger Roto

A Jaeger Rotary compressor is one of the most efficient and useful tools you can invest in.

On this interchange job, for example, a Jaeger "600" first powered the auger to drill pilot holes, then drove the piling with a waiting Vulcan #1 hammer — as smooth as steam.

LOW COST AIR, UNDER CLOSER CONTROL: Any big Jaeger Roto will deliver more than 500 cf of air per pound of fuel. This is because the efficient Jaeger produces full rated volume at 1700 rpm with the same engine others must operate at 1800 rpm.

Moreover, pressure is held constant, even under the widely fluctuating demands of pile driving. Speed modulation is smooth, stepless, and instantaneously controlled, over the entire operating range.

Ask your Jaeger distributor for the cost-saving figures on any size Jaeger Rotary — 75 to 900 cfm, or send for newest catalog JC-0.



FOR SMALLER HAMMERS TOO: Jaeger "250" Roto, a portable 2-wheel compressor, keeps McKlernan-Terry #5 hammer hitting 300 blows per minute for R. A. Wattson, contractor on Los Angeles County flood control project.

LEFT: "600" compressor powers air motor to auger pilot holes for beam piling, then drives piles with Vulcan #1 hammer. Job is controlled access divided highway with interchange on Interstate 240, near Memphis. S & W Construction Co.

THE JAEGER MACHINE CO., 800 Dublin Avenue, Columbus 16, Ohio

Jaeger Machine Company of Canada, Ltd., St. Thomas, Ontario

Worldwide sales and service through Jaeger International Corp., Apartado 137, Panama, R. P.
PUMPS * TRUCK MIXERS * CONCRETE MIXERS * CONCRETE SPREADERS * FINISHERS * FINISHER-FLOATS

← Circle 86 on Reader Service Card

Circle 87 on Reader Service Card



BIGGEST NEWS in wire rope in years!

You owe it to your company to learn about Macwhyte's new 7-FLEX. But-be prepared to change your thinking about wire rope!

You've never seen another wire rope like 7-FLEX there is no other like it! It's an all-purpose wire rope, flexible as 8-strand — rugged as 6 x 19 — fatigue-resistant like a 6 x 37.

There is 16%% more wearing surface in 7-FLEX than there is in a 6-strand rope. There is less unit pressure between rope and sheaves, so less rope and sheave wear. There is more sheave contact, less rope-creep. Result: longer rope life, less downtime, lower operating costs!

7-FLEX can make important savings on many wire-rope applications. Ask any Macwhyte distributor. Free Bulletin 60100-R available upon request.

Other Macwhyte products that serve you profitably



Slings — Safe, easy-to-handle Macwhyte slings for every lifting need are available in round-braided, fist-braided, or Safe-Guard styles. Many standard designs. Also custom-made to your requirements. Send for Bulletins 5308-R and 5886.



Corrosion-Resisting Wire Rope — Many sizes and constructions in Stainless Steel, Monel Metal and plastic or nylon coated. Meet the requirements imposed by alkaline and acid conditions and marine atmospheres, temperatures, and humidity. Send for Bulletin 49-30.



Wire Rope Assemblies — Safe-Lock wire rope assemblies are precision made to your order in the size, length, and strength needed. Uniform high quality with fittings permanently swaged to the rope. Many standard designs. Send for Catalog 6101.



MACWHYTE Wire Prope COMPANY

2900 FOURTEENTH AVENUE, KENOSHA, WISCONSIN

Wire Rope Manufacturing Specialists Since 1896

Circle 88 on Reader Service Card

CONSTRUCTION METHODS

Construction Methods AND EQUIPMENT

MAY. 1961

VOLUME 43 . NUMBER 5

HENRY T. PEREZ. Editor

To Help Highways

PRESIDENT KENNEDY, following a resolution of Congress, has proclaimed the period of May 21-27 as National Highway Week. This will give each of us who has a stake in the roadbuilding program—and that means everyone in any phase of the construction industry—an opportunity to acquaint the public with the need for an orderly and rapid completion of our highway network.

Right now Congressional action is urgently needed to provide funds for roadbuilding. President Kennedy said it in his special message to Congress: "Our federal pay-as-you-go highway program is in peril. It is a peril that justifies a special message because of the vital contribution this program makes to our security, our safety, and our economic growth. Timely completion of the full program authorized in 1956 is essential to a national defense that will always depend, regardless of new weapon developments, on quick motor transportation of men and materials from one site to another.

"But now," the President went on, "that program is in trouble [because of lack of money]. I am wholly opposed to either stretching out or cutting back our highway program, and urge the Congress not to rely on either solution. Either step would be unwise at a time when our slump-ridden economy needs greater, not less, construction activity. Either step would be unfair to the individual states who have proceeded in good faith, and in reliance on the Treasury's certification of adequate funds, to make plans and expenditures looking to receiving their full apportionment this July. And to postpone the completion of the Interstate System only further postpones the day when our highways will be adequate to meet our defense, economic, and general population increase needs."

Instead, the President advocates raising the \$9.7 billion required to keep the program on schedule on a pay-as-you-go basis by maintaining the present 4ϕ per gallon gasoline tax and increasing taxes on diesel fuel, heavier trucks, highway tires, inner tubes, and tread rubber. However, he said that raising the additional money by a $1/2\phi$ increase in the gasoline tax would be acceptable as a substitute.

Both of these fund-raising proposals have been attacked by self-interest groups. Some of these people even seem to question the need for a modernized and expanded highway network.

So now is the time to promote good roads. The construction industry has most to gain from an adequate roadbuilding program. Prepare now to support National Highway Week. We'll be fools if we don't capitalize on the opportunity that President Kennedy has given us.

To Help You

The Better Highways Information Foundation (2000 K St., N.W., Washington 6, D.C.) has developed promotional material to help you "sell" good roads to the general public. Included are posters, speech drafts, press and radio releases, and a color movie that describes the benefits of good roads. All are available at cost from BHIF, to be used by you in promoting good roads.

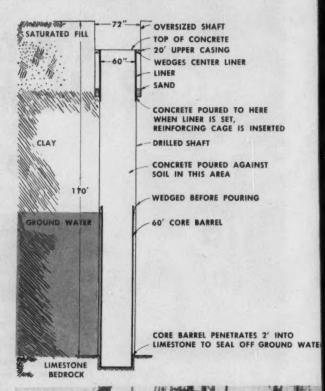
Top and Bottom Casings Seal

CAISSON CROSS-SECTION — Shown at right is a typical 60-in.-dia tower caisson. Upper casing is oversize to permit boring without scraping casing. It is pulled the day after caisson is poured. Case's 51-B drill rig keys the core barrel into the limestone.



LOWERING CASING—A 3000 Manitowoc crane eases a 60-ft-long core barrel into shaft where the casing shuts off the lower section of caisson from surrounding trapped water.

SPINNING AUGER—One of the pair of truck-mounted Williams rigs that handle drilling of the shafts clears its auger after boring down and lifting out a plug of material.





Deep Caissons

By EUGENE J. SCHREIBER, Assistant Editor

WITH AN ASSIST from the world's largest caisson borer, a Chicago contractor drilled 110 ft deep to place 151 concrete caissons for the world's tallest

apartment buildings.

The site for the 60-story Marina City apartments is along the north bank of the Chicago River. For years it was a spoil area for saturated, granulated fill that was dredged from the river. Below this fill are layers of silty clay, stiff gray clay, sandy clay, and-at about 105 ft-limestone fragments and boulders. The contractor, Case Foundation Co., had to go down 110 to 115 ft to reach sound limestone.

Because of the varying soil conditions, Case had to place three separate casings into most of the 151 caisson shafts. The first cylinder sealed off an initial 20-ft shaft from surrounding saturated fill. Then Case drilled down to Niagran limestone at 110 ft and placed in the shaft a 60-ft-long core barrel that sealed off trapped water. The huge 51-B Case drill rig cored the cylinder into the limestone. Case set a third steel shell inside the upper casing. Concrete was placed inside this liner, allowing the upper casing to be pulled the next day.

Caisson Rings Support Twin Apartments

Of the 151 caissons, 80 form circular patterns for the two tower foundations of the twin apartment buildings (see caisson plan on p. 92).

Before sinking a shaft all the way down to limestone, Case had to seal off the upper 20 ft from surface water and saturated fill. The first casing, a 5/16-in. steel cylinder, accomplished this.

A pair of rigs built by the Hugh B. Williams Co. of Dallas handled the drilling chores. An oversized shaft was drilled for the top 20 ft of each caisson. The shaft had a larger diameter than the final caisson so that subsequent drilling could continue without scraping the sides of the inserted casing. The auger diameter for the top 20 ft of the 66-in. cais-

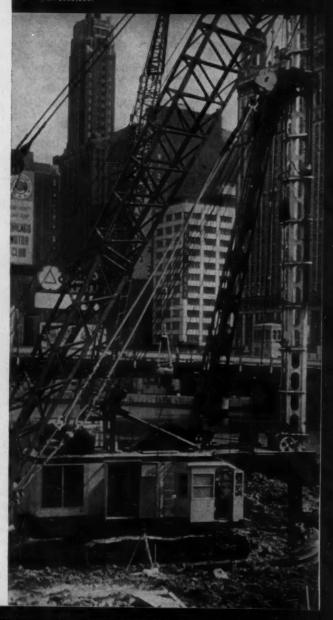
sons in the inner tower rings was 78 in.

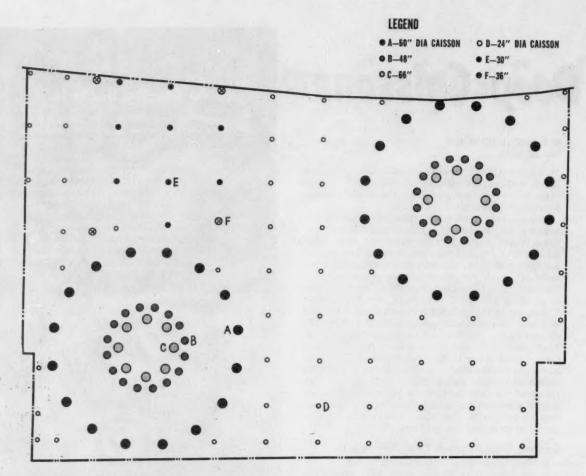
Both Williams rigs were mounted on Hendrickson carrier trucks. One was capable of drilling to 90 ft, the other to 110 ft. After an oversized 20-ftdeep shaft was drilled, a Manitowoc 3000 crane with a 100-ft boom picked up and lowered into the shaft a casing with the same diameter as the auger. With the top portion of the caisson sealed off from surface water and fill, drilling of the shaft resumed. But this time, a Williams rig drilled with an auger just slightly larger than the final caisson diameter desired so that the next casing to be placed, the core barrel, could slip in with ease. This drilling started at the minus 20-ft level and went to 110 ft.

Upon reaching limestone, the contractor faced another water obstacle. To overcome it, Case had to seal off another segment of the shaft, where ground water trapped above the limestone rose 55 ft.

continued on next page

Key to Coring Barrels





CHICAGO RIVER

TOP AND BOTTOM CASINGS SEAL CAISSONS . . . continued

At this point, the core barrels and the giant 51-B Case drill rig came into play. First, the Manitowoc crane lowered a 60-ft-long barrel down to the limestone bottom of the shaft. Each ½-in-thick barrel had a set of teeth around its lower edge so that it could be keyed into the rock by turning it with the 51-B rig. The teeth were hardened with Stoody hard-surfacing alloy rods.

Torque was transmitted from the 51-B rig to the core barrel by a spinner attachment devised by Case. Made of welded plate, the spinner has four projecting 3-in.-dia steel pins that fitted into shoe-shaped slots at the top of the core barrel. The edges of these slots were reinforced with steel plates to supply additional strength where the turning thrust was applied. The drill rig's 4½-in. square Kelly fitted into a hole in the center of the spinner. The rig revolved the spinner to turn the core barrel.

The 51-B rig cored each barrel 2 ft into the limestone to form a watertight seal at the bottom of the caisson. Once the barrel was keyed into the rock, the Manitowoc crane lowered an automatic-valve-type bailing bucket into the shaft to remove most of the water and spoil. Then a platform supported by an A-frame was placed over the caisson, and a laborer was lowered down. An electrically operated Flygt pump and an Ingersoll-Rand tugger hoist

and bucket raised water and muck from the bottom of the shaft. The workman then cut down several feet into the limestone inside the barrel with a Thor paving breaker.

Tower Barrels Left in Place

After cleaning out the bottom of each shaft, Case was ready to pour concrete. For the 80 twin tower cassions, concrete was poured with the core barrels left in place. This assured additional strength where load concentration was the greatest—directly beneath the apartments. To prevent concrete from running into the space between the top rim of the core barrel and the side of the shaft, workmen plugged the space with wood wedges.

Ready-mix trucks delivered concrete to each caisson, and workmen poured it into the shaft through a small hopper and an elephant trunk. When the level of concrete rose 90 ft to the bottom edge of the upper casing, the Manitowoc crane lowered into the shaft a ½-in. steel liner with the same inside diameter as the caisson. By doing this, Case could pour concrete into the liner and the next day pull the upper casing surrounding it. The liner extended from about 1 ft below the upper casing to the concrete cut-off point, just below ground level.

After centering the liner in the hole, workmen



SETTING CAGE—A 3000 Manitowoc crane lowers a reinforcing cage into a 66-in.-dia tower caisson. Ironworkers make up the 60-ftlong cages of 30 \$11 bars at a nearby area.

wedged blocks between it and the surrounding upper casing to hold it in place. Then they backfilled the space with 1 ft of sand to prevent concrete seepage between the liner and the casing.

Next, the Manitowoc lowered a reinforcing cage into the liner, and workmen wired it in place. Then they continued pouring concrete to the cut-off mark. The next day they pulled the upper casing.

The reinforcing cages for the caissons in the inside ring of each tower caisson were made of 30 \$11 bars. These cages are 60 ft long and protrude about 3 ft above the concrete cutoff so that the building's columns can be tied in with the caissons. The cages on the other two sets of rings for each tower were 13 ft long. The cages for the middle rings consisted of 12 \$18 bars, and the outer rings, were reinforced with 14 \$18S bars.

Some Core Barrels Pulled

A different method was used for the caissons that were not in the tower rings. On all but the two rows of 24-in.-dia caissons nearest the river, the core barrels were pulled out while the concrete was being poured into them.

A 55-ft head of ground water built up between the in-place core barrels and the side of the drilled shaft. The contractor had to prevent this water from penetrating the concrete while pouring the caissons and pulling the barrels.

First, Case filled each 60-ft core barrel half full with concrete. Then, the core barrel was raised 5 ft by a Manitowoc crane. The concrete in the core barrel slumped into the drilled shaft and forced the water up outside the barrel. After the concrete slumped, the procedure was repeated.

Each core barrel was raised in this manner until its top edge was 5 ft above ground. Workmen then filled the entire core barrel with concrete. At this stage the trapped water was already overrunning the shaft at ground level. It was not necessary for the contrctor to use a liner inside the upper casing as he had on the tower caissons. The crane then lifted the top of the core barrel 30 ft out of the shaft, and another crane filled the barrel again.

Next, the crane lifted the core barrel completely out of the hole, allowing concrete to rise into the upper casing. Workmen then set a 13-ft reinforcing cage in place and poured concrete to slightly above the cut-off elevation. The crane lifted the upper casing out of the shaft, and the concrete level slumped to the cut-off mark.

On the two rows of caissons next to the river, the core barrels were left in place. They have steel reinforcing cages that reach to their bottoms to insure support in the event of future river dredging.

Bob Martin was Case's superintendent on the Marina project. Assistant superintendent was Don Morin. Bill Keipert and Louis Anderson represented the architect, Bertrand Goldberg Associates.



POURING CAISSON—Ready-mix concrete flows into a shaft to complete a caisson. The next day the upper casing is pulled. The concrete is contained in the top liner.



READY WHEN NEEDED—Workman dumps batch bag by pulling locking ber out of bag's collar. Truck's lifting attachment holds bag.

Batch in Bags Is Ready to Mix

A California ready-mix producer has developed a two-compartment rubber bag that holds a batch of cement, aggregate and water in a ready-to-mix state. A contractor can store at the job site as many bags as he will need for a pour and avoid delays.

A READY-MIX PRODUCER has come up with a ready-to-mix concrete package that appears to have wide application for contractors.

The package is a 1½-yd rubber bag that holds cement in one compartment and aggregate and water in another. Material can be loaded at the batch plant, delivered to the job, and then mixed and poured when needed.

The rubber batch bag was developed by Rodef-



ADAPTER—Sheet metal mating necks form loading sleeves.



PLATFORM—Chain-driven rig holds bag in leading position.

fer Industries, Inc., of Pasadena, Calif., after 3 yr of research. The outer compartment of the 6-ft-high bag holds aggregate and water. Another compartment in the center of the aggregate container holds cement. Cement and aggregate and water are completely sealed off from each other. Rodeffer estimates that the bags can be used from 800 to 1,000 times before replacement is necessary.

What's the advantages of the rubber batch bags? The contractor can store at the job site as many bags as he will need for a pour well in advance. None of the material need be wasted because of pouring delays—the batches are not perishable. And the system eliminates delays that could result from over-crowding at the batch plant.

Batching is cheaper, too. A large, high-production batch plant at the quarry can replace a number of smaller plants located at various jobs. The contractor can ship the bags directly from the source of supply to each job. Rodeffer estimates that the cost of batching can be cut at least 75%.

Only minor adaptations are required to convert a conventional batch plant for use with the bags. At their El Monte plant, Rodeffer fills bags from a platform that rides on rails beneath the batch bins and holds the bags in loading position.

The platform is equipped with a mating neck that fits inside a 2-ft-high sheet-metal adapter temporarily attached to the collar of the bag. A 3-ft-long loading neck built into the top of each bag compartment wraps around each of the two concentric rings of the adapter to form a sleeve.

A winch hoists empty bags into loading position. The chain-driven platform then moves under each hopper in turn, loading aggregate, cement and water. Then the platform moves back and a yard crane lifts the full bag from the platform.

To close and seal the bag, a workman wraps the vinyl plastic loading necks of each compartment around a steel locking bar that keys into holes in the collar of the bag.

A lifting ring built into a collar at the other end of the bag facilitates further handling. A full bag weighs about 6,100 lb. Any crane or other lifting rig can handle it easily with a hook.

Mixing at the site can be handled by a ready-mix truck, a paver or any other type of concrete mixer. Rodeffer has equipped three of their 6½-yd transit-mix trucks with a special lifting attachment to handle the bags, but this isn't essential. To unload a bag, a workman merely pulls the locking pin.



CONGESTED CUT—Long reach of truck-mounted drills enables them to sink 50 closely-spaced holes for a shot in just three moves.

THANKS TO THE LONG REACH of a contractorbuilt twin-boom drill rig, it had to be moved only three times to make 50-hole blast patterns for a rock cut on Chicago's Northwest Expressway.

Explosives Engineering Service, Inc., of Oregon, Ill., brought in the truck-mounted drill rig of its own design when conventional tractor-mounted drills had to make too many moves in the congested rock cut.

Hoses and tracks of the crawler drills were chewing up clay pockets at the top of the rock stratum as they moved from hole to hole. Many of the holes, which were closely spaced on 6-ft centers, were covered and filled with mud.

By reducing moves to a minimum, the truckmounted rig practically eliminated lost holes.

The rig, nick-named the Monster by the contractor, is made up of standard rock drill components mounted on a surplus Army 6x6 truck chassis. Two Chicago-Pneumatic H-booms are set on a steel deck behind the truck's modified cab (a new steel cab fits over the left fender of the truck).

Each boom carries a Gardner-Denver No. 123 drifter that can bore holes up to 3½ in. in dia. A 900-cfm Chicago-Pneumatic rotary compressor mounted at the rear of the truck supplies air to the drills. A Cummins 365-hp diesel engine powers it.

Maximum horizontal radius of each boom is 16 ft. To permit overlapping when necessary, each boom rotates about an arc of 270 deg. The versatile rig can drill vertical, horizontal or angled holes.

Its reach is its big feature. The Monster can drill vertical holes on ledges 10 ft above the truck, or drill in trenches 15 ft below ground level. It also can drill horizontal holes 18 ft above the truck.

On the Chicago road job, the specially-designed rig drilled 50,000 ft of 2½-in. holes averaging 12 ft in depth. Because its long reach minimized moves, it averaged 125 ft of hole per hr.

A three-man crew operated the rig—one compressor operator and two drill operators, one on each of the drifters. Portable control boxes suspended from each boom by chains were close at hand for the drill operators. The rig also is equipped with a master control box in the cab.

The Monster also completed 10,000 ft of 22-ftdeep holes for a sewer line and redrilled or blew clean many holes drilled earlier but lost to mud.

Orr Construction Co. of Chicago Heights, Ill., was the general contractor. Resident engineer for the Illinois Highway Dept. was J. P. Tuthill.



TWIN BOOMS—Each 15 ft-long H-boom carries a 31/2-in. Gardner-Denver drifter. Diesel-powered compressor at rear supplies air.

Drills on Truck Cover Big Area



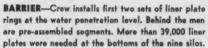
CONTROL PANEL—Handy portable control box hangs by chain from each boom of rig within easy reach of the drill operators.



PROTECTION—Rock bolts, Gunite over mesh, and cribbing rings strengthen fractured granite that forms the top 20 ft of excavation for missile base silo. Rings are suspended from tie rods on 5-ft centers.



WATER TIGHT—Engineers inspect seams of liner plates to make sure that moisture seal is effective. A special rubber caulking compound applied to the liner flanges and 1/2-in. bolts maintain a water-tight seal. By eliminating welding, installation time is cut in half. A slip form will place a 21/4-ft thickness of concrete against liners.







DOWN THE HOLE—Telephone contact is maintained between the crane operator, who must work in the blind, and the crews at the bottom of the 160-ft deep, 40-ft-dia silo excavation. In photo at right, crane lowers down platform holding workmen past ring beams to the bottom of the excavation. A safety net hangs in the silo.

Caulked Liner Plates Seal Off Moisture at the Bottoms Of 160-Ft-Deep Missile Silos



BOLTED LINER PLATES are serving as a moisture barrier as well as structural support for missile base silos now under construction in California.

Original specifications called for welding the plates together at the bottoms of the silos to provide a water-tight seal. But tests proved that a special rubber caulking compound, together with bolts, provided an equally tight seal.

The application of the caulking compound around the liner flanges eliminates the need for hundreds of 54-in. welds. The contractor, Peter Kiewit Sons' Co., estimates that caulking cuts installation time in half.

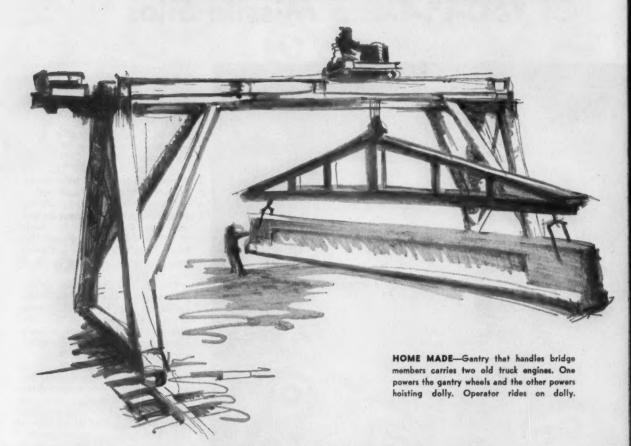
The caulked plates form an effective water barrier against the extremely high hydrostatic heads found at the bottoms of the 160-ft-deep, 40-ft-dia Titan missile silos now under construction around Beale Air Force Base.

The liner plates are used only at the bottom of the silos. Cribbing rings act as support ribs above the water penetration level. Both the liner plates and cribbing rings were supplied by Commercial Shearing & Stamping Co., Youngstown, Ohio. The special caulking compound, PRC 150, is a polysulfide base synthetic rubber sealant developed by Thiokol Chemical Corp. and supplied by Products Research Co.

After the plates are positioned and caulked, a 2-in. seal of Class C concrete is placed behind them. The silos are lined with a 2¼-ft thickness of concrete that is poured against liner plates. Concrete is placed by the slipform method.

Peter Kiewit Sons' is building three missile base complexes, each consisting of three silos, at Lincoln, Sutter Buttes, and Chico, Calif. Total cost is \$30 million.

Prestressed Bridge Members Placed as Soon As They Arrive at Job Site



Efficient handling of piles and beams allows the contractor to cut almost 100 days off the schedule for construction of 1,500-ft-long structure.

A total of 197 prestressed piles and 112 girders were cast 150 mi from the job site and transported by trucks.

A SHOP-BUILT GANTRY and two sectional barges get primary credit from a contractor for the quick erection of a 1,500-ft-long prestressed concrete bridge across the Catawba River south of Charlotte, N.C.

The rail-mounted gantry crane lifted prestressed members off trailer trucks as they arrived at the job site and carried them to the river. One of the sectional barges served as a floating templet for driving piles, and the other carried a crane that handled piledriving and concreting chorses

With this basic setup, McMee-

kin Construction Co. of Cheraw, S.C., completed the substructure and deck in little more than 300 working days. The contractor is now putting the finishing touches on the structure and expects to have it ready for traffic later this spring, well under the 400-working-day limit called for in the specs.

A total of 197 prestressed piles and 112 prestressed girders were cast for the job by Southeastern Concrete Sales, Inc., of Cayce, S.C. These members were transported 150 mi to the construction site by trailer trucks.

"We erected bridge members as



Prestressed Piles Carry Prestressed Girders

QUICK JOB—Bridge is carried on 22 bents made up of prestressed piles topped by cast-inplace caps. Below, concrete buckets are barged out to pour area and picked up by a crane.



soon as they arrived," says Bill Prather, McMeekin's superintendent. "In a normal work day we built a seven or eight-pile bent with no trouble at all."

The bridge is supported by 22 bents consisting of seven to ten prestressed piles topped by a cap that was formed and cast in place. Octagonal in shape, the piles are 22 in. wide and from 45 to 70 ft long. Girders are 45 in. deep and from 50 to 64 ft long.

When a trailer truck with members arrived on the job, it was positioned under the gantry crane, which has an overhead clearance of 16 ft. Once a member was lifted clear of a truck, the crane advanced on tracks that began on land and extended 75 ft out over the river on timber planks supported by timber piers. There, the gantry loaded the member onto a river barge that transported it the rest of the way.

McMeekin's gantry has two steel A-frames positioned 40 ft apart. Two 14-in. H-beams span the top of the frames. The H-beams are 5 ft apart and support 4-in. rails on which the hoist mechanism rides.

The gantry is equipped with two Chevrolet engines that were removed from scrapped pickup trucks. One engine is cantilevered to the side from the top of one of the A-frames. It powers all four wheels on which the gantry travels.

The other engine is mounted in a hoisting dolly that rides the rails atop the gantry frame. An operator sits on the dolly and controls both dolly travel and hoisting operations.

Barge Carries Members

To pick up a prestressed member with a hoist, McMeekin attached a 75-ft-long steel spreader bar to the ends of the member. The hoist, through an eight-part tackle, raised the member, and the gantry rode on its tracks to load a 30x40-ft barge.

Piledriving was handled from a 40x50-ft Branigan sectional barge. Fabricated in Houston and shipped to the site by rail, the barge consists of four connected sections, each 50 ft long, 10 ft wide, and 5 ft deep. It was anchored with 70-ft-long spuds that could be raised or lowered in

wells located at each corner of the assembled barge.

When it came time to move the barge, a crane lifted the spuds up the wells. A lever anchor pin fitted into a hole in each spud to hold it in a raised position. To anchor the barge, a workman retracted each pin by striking the lever end with a sledge.

The barge carried a Northwest No. 6 crane with a 75-ft boom. Piles were driven with a Vulcan O steam hammer that rode a spud lead. All spuds were made by welding two MP-116 sheet piles into a box section.

To position piles, McMeekin built templets that cantilevered over one end of a two-pontoon barge. The pontoons, which were taken from another sectional barge, were 42 ft long, 5 ft wide, 5 ft deep, and spaced at 30-ft centers. Three 50-ft-long, 14-in. H-beams bridged the top of the pontoons and were bolted to them. A timber templete was mounted on the ends of the H-beams that cantilevered over the side of one of the pontoons. Several different templets were used, depending upon pile spacing, but each temPRESTRESSED BRIDGE MEMBERS . . . continued

Firmly Anchored Barges Play Key Role



IN POSITION—Piles are driven from barge held in position by spuds. To anchor the barge, a man strikes the lever end of an anchor pin on each spud (right) and it drops to river bottom.



plet handled all piles for a complete bent.

The templet was positioned along the bridge center line by instrument observation from shore and the barge was anchored firmly to a previously driven bent. After piles for a complete bent were driven to bedrock, the barge was slipped out between bents and advanced to the next position.

The templet barge also came in handy during the construction of a 19x49-ft braced sheet pile cofferdam for a pier in 35 ft of water at midstream. This was the only cofferdam required.

To build the cofferdam, the contractor preassembled the bracing system for the sheet piles on shore and then barged it to the site. Consisting of four rectangular rings of 14-in. H-beams, the bracing system was hung on eight 70-ft-long spud piles that were positioned by the templet barge.

From the top, braces were 12 ft, 9 ft, and 6 ft apart, and the bottom brace was 6 ft above the top of the tremie seal after it was poured. Bethlehem DP-2 sheet

piling in 65-ft lengths was driven around the bracing system.

Next, the contractor excavated the river silt 25 ft down to bedrock with an air-lift pump. Two Ingersoll-Rand 300-cfm compressors mounted on the sectional barge supplied air to a 2-in.-dia pipe that adjoined an 8-in.-dia pipe. The air was admitted into the bottom of the larger diameter pipe and the resultant flow carried river muck up to the surface.

After reaching bedrock, Mc-Meekin poured a 23-ft-thick seal that required 794 yd of concrete. Then the cofferdam was dewatered with three Jaeger pumps.

Once the cofferdam was dry, a 3-ft footing and a 41-ft pier shaft above it were poured.

Concrete Placed in Stages

Delivering concrete to the cofferdam required a relay system of three barges and two cranes. Transit-mix trucks carried the concrete part way on the partially completed bridge deck. A ¾-yd Lima crane mounted on a barge in the river worked with three concrete buckets that were loaded by the trucks. The Lima transferred the buckets to a second barge, from which a Northwest crane on a third barge picked them up and swung them half circle to the cofferdam area. With this system, the seal was poured in 36 continuous hours.

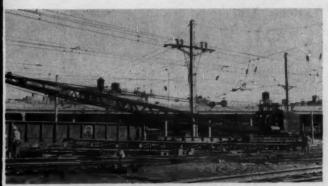
A similar relay system also was used to concrete the 34-ft-long, 3-ft-wide, 2½-ft-deep pile caps, which were cast in place.

The bridge has two 170-ft steel truss sections at midstream. These were erected on steel falsework.

Deck pours were handled with transit-mix trucks. Deck forms, consisting of ¾-in.-thick, 4x8-ft plywood panels, were supported by timber falsework from the bridge girders.

The bridge replaces an older, 16-ft-wide through-truss structure alongside. Cost of the \$663,-087 project is being shared by North and South Carolina; the river forms the border between the two states. Construction is under the direction of the North Carolina State Highway Dept. H. M. Burgin is the division engineer and W. A. Little resident engineer.

A railroad timetable is an important factor on this job. It decides when the contractor's locomotive crane can take over the tracks to drive piles.



MOVING IN (ABOVE)—As soon as railroad clears track, locomotive crane rolls under power lines to driving position. Flat car in front cradles rig's boom and holds piles.

AT WORK (RIGHT)—Rig sets up in 45 min and goes to work with McKiernan-Terry 1083 hammer powered by truck-mounted steam plant. Crew averages 5 piles per 5-hr day.



Piledriving Follows RR Schedule

A SCHEDULE that limits piledriving time to just 5 hr a day puts a premium on fast settingup on this job. McCloskey & Co. gets the most out of each minute with a locomotive crane that moves in and is ready to drive piles in 45 min.

The contractor is building a post office annex in Philadelphia that straddles the tracks feeding a Pennsylvania Railroad station. A maze of electric power lines overhead ruled out a conventional crawler-mounted piledriver from the start. After the railroad granted permission for the use of one track at a time in between commuting rush hours, McCloskey rented an Industrial Brownhoist No. 8 diesel locomotive crane to handle piledriving.

As soon as the railroad clears the track in the morning (usually about 10:30 am), the locomotive crane moves in from a siding below the site. It pushes a flat car that cradles the rig's 85-ft boom and carries about 20 steel bearing piles, enough for four days' driving.

When it pulls within reach of a pile cluster, the crane booms up through the overhead power lines. Lines over the track on which the contractor is working are moved to one side to provide clearance. Otherwise, no alteration of the electrical system is necessary.

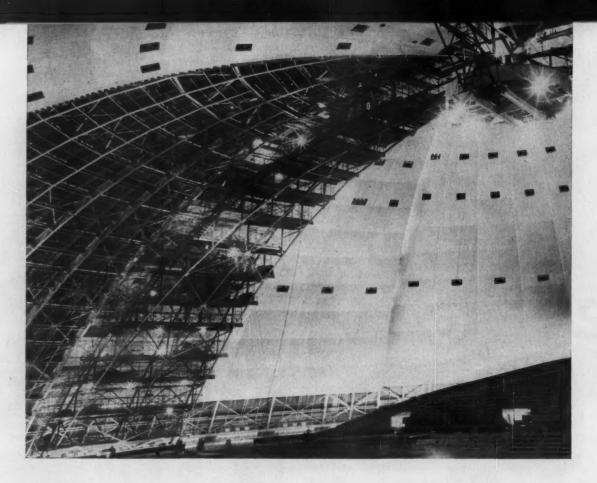
Then the rig raises the 75-ft leads into position by means of a lift line at the top and a sling attached near the mid-point of the leads. The shop-constructed steel leads hang free from the end of the boom. Fixed leads are out of the question because the crane must boom down flat to move under the power lines. The leads are left overnight on an island between tracks.

When the rig lifts the McKiernan-Terry 10B3 hammer into the leads, it's ready to go to work. Procedure when shutting down at the end of the short work day is just the reverse. McCloskey must have the track cleared by 3:30 pm, when the railroad turns the power back on and rush-hour trains start to roll.

Because of the curtailed schedule, McCloskey average only five or six piles a day. The crew has to stop driving whenever a train goes by on another track.

The job calls for a total of 870 bearing piles plus 135 cast-in-place piles. About 150 of the steel piles are spotted in between the railroad tracks. A Lima 1201 crawler crane with a Vulcan No. O hammer drives the others. Pile clusters contain from 5 to 8 piles Average depth of the piles is 57 ft.

Project manager for McCloskey is William McCloskey. Superintendent is Stanley Czapkewicz and project engineer is Jack Uhrin.



Pivots in Center of Dome Roof Hold Rail-Mounted Scaffolds

PIE-SHAPED, CURVED SCAFFOLDS are holding work platforms for crews finishing the interior of the movable dome roof over Pittsburgh's Civic Auditorium. The scaffolds move on a circular track and rotate about pivots near the center of the dome.

Design and construction of the scaffolds were part of the roof construction contract. It required that the prime contractor, American Bridge Co., provide work platforms or scaffolds for the subcontractors installing electrical equipment and utilities. No design for the scaffolds was specified.

After considering tubular frames and other methods of shoring, Rey Helvenston, construction superintendent for the Public Auditorium Authority, and engineers at American Bridge decided to build the pie-shaped scaffolds and mount them on a track for easy moving. As an added advantage, these scaffolds left the floor of the auditorium clear for other work crews.

To keep horizontal thrusts on the roof in balance, American Bridge erected two identical scaffolds on opposite sides of the dome. Each scaffold rotates about one of two hinges that support sections of the roof.

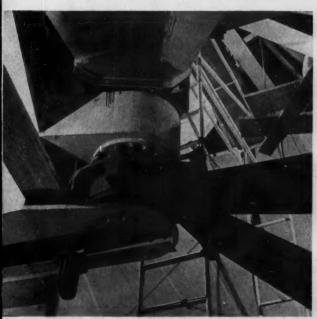
Three arched structural steel trusses make up the main frame of each scaffold. Two trusses along the outer edges of the scaffolds come to a point at the hinge, and the center truss ends at a cross brace about three-fourths of the way up the scaffold. The trusses, which are braced with steel angles, hold tubular scaffold frames that allow elevation adjustments to meet the access requirements at various points along the dome.

Stationary Truss Supports Pivots

The dome is not a true circle. It consists of two semicircular sections separated by an 8-ft-wide stationary truss that supports the roof. The pivots for the retractable roof leaves are 10 ft apart and are mounted at a distance of 1 ft on either side of the truss. Three roof leaves and one scaffold rotate about each pivot.

A pivot consists of four weldments—one for each leaf and scaffold. Each weldment contains a stainless steel pin and a spherical bearing. The spherical bearings allow the roof to deflect laterally under snow, wind, or other external loads. The weldments containing the bearings for the scaffolds will be removed after the roof is completed.

At the bottom end of each scaffold, two fourwheel trucks carry the weight to a circular rail atop the concrete ring girder that circles the auditorium. To cut down laterial forces on the rail, it is inclined and supported by a tilted haunch.



CENTER SUPPORT—Weldments in the center of the dome contain spherical bearings for the movable roof sections and scaffolds.

Each truck carries one corner of a scaffold. An equalizer pin in the center of each truck permits it to pivot about its mounting so it can follow the circular rail. But the equalizer pin is really unnecessary because the flanged steel wheels are wide enough to follow the curvature of the rail.

The scaffolds are 55 ft wide at the base and come to a point at the pivot. The sides make a 15-deg angle at the center. The distance from the pivot to the rail is about 165 ft, measured along the arc. Along the outside trusses are 5-ft-wide stairways and work platforms.

Erection of the scaffolds was similar to the erection of a truss bridge. First, the lower sections were assembled and set on the trucks; the upper ends of these sections rested on posts. Then scaffold sections were cantilevered above the posts and a new set of posts put in place. This was repeated until the pivot was reached. The reverse of this procedure will be used during disassembly.

During erection, the connections were bolted; during disassembly, the scaffolds will be cut apart to save time. Salvage is not a consideration because the scaffolds will not be reused. The rail atop the ring girder will remain in place.

Moving the scaffold along the rail is easy. When possible, American Bridge brings in a tractor with a winch, but when access is limited they use comealongs. Both scaffolds are moved at the same time. Chucks and wedges secure the scaffolds in place.

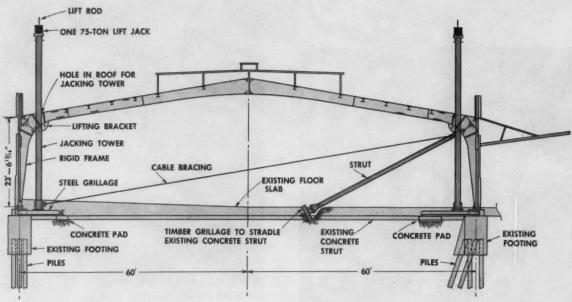
In charge of the entire project is H. Rey Helvenston who is resident engineer and construction superintendent for the Public Auditorium Authority. He also coordinates the activities of the eight prime contractors on the job.



CIRCULAR TRACK—Four-wheel trucks at the corners of a scaffold ride on a track atop the ring girder that circles the auditorium. A tilted haunch supports the inclined track.



INTERIOR FINISH—Welder installs supports for interior roof panels that are made of 20-gage Galvaneal, an electrozinc-coated steel sheet manufactured by U. S. Steel Co.



JACKS ATOP TOWERS THAT STRADDLE RIGID FRAMES LIFT 120x832-FT BUILDING IN FOUR 1,900-TON SECTIONS

Lift-Slab Technique Borrowed

RAISING THE ROOF is old hat to an American Bridge erection crew that went one step further and lifted an entire building 17½ ft off its foundations with a method borrowed from lift-slab construction.

The structure is a one-story, 120x832-ft transit shed at Long Beach, Calif. It had become unusable because of land subsidence, and the Long Beach Harbor Dept. called in Guy F. Atkinson Co. to remedy the situation. The contractor cut the building into four sections to prepare the way for four separate 1,900-ton lifts by American Bridge Div. of U. S. Steel Corp.

Hydraulic jacks mounted atop steel towers protruding through holes cut in the roof of the shed provided the lifting muscle. Vagtborg Lift-Slab Corp. of Los Angeles operated the jacks, each of which had a capacity of 75 tons. The subcontractor used as many as 28 jacks to handle a single lift.

There were two rows of jacking towers—one on each side of the building about 5 ft inside the face of the wall. Each tower consisted of two 16-in. beams laced together by 2½-in. angles. The tower columns straddled rigid frames spaced at 32 ft. The angle lacing in the upper portion of each tower was removed and later replaced

during jacking to permit passage of the rigid frame.

A hinged strut and a cable tie rigidly braced each of the towers along one side of the building. Towers on the other side were free to move slightly during the lifting operation to prevent damage to the structure. In addition, cable cross-bracing in the plane of the wall prevented the towers from tilting sideways.

Jacks Support Building

Lifting rods of each jack passed through a lifting bracket welded near the knee of a rigid frame. Nuts at the bottom of the rods took up against base plate welded to the lifting brackets so that the entire building section was suspended from the jacks during a lift. Hydraulically operated nuts at the top of each threaded lifting rod held the load while the jacks were retracted at the end of each 3-in. stroke.

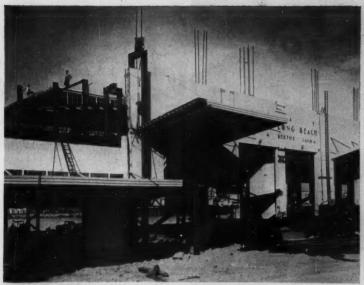
An additional pair of towers straddled the walls at one end of each of the four building sections. The contractor took advantage of existing compression joints in dividing the building. Each of these additional towers—one at each side of the building section—carried a single jack.

Most of the other towers also mounted only one jack. Towers at each end of a firewall included in one section each carried three jacks. And at the ends of the building, towers connected in pairs at the top by 24-in. beams formed two bents that carried the extra weight of a two-story office section. These towers were 65 ft high. Other towers at more typical sections were only 50 ft

Trusses reinforced the firewall and end walls of the office sections for each lift. Fabricated of 4x6-in. and 8x8-in. angles, the trusses were secured to the walls by 28-in.-long, 2-in. bolts inserted in holes drilled through the composite steel and concrete columns in the walls. Altogether, American Bridge used some 400 tons of steel to beef up the building.

The first 224-ft-long section of the building required 20 jacks. The second section was 256 ft long and included the concrete firewall. It required 28 jacks to lift it. A total of 20 jacks was sufficient for the 192-ft-long third section, and only 18 jacks raised the 160-ft fourth section.

At the start of each lift, a crew removed anchor bolts at each rigid frame footing to free the structure for the lift. Previously, concrete tie beams connecting column footings along each wall had been sliced with pneumatic



UP SHE GOES—Extra jacking tower straddles wall at compression joint that divides building sections. Heavy trusses bolted to firewall inside reinforce it for the big lift.

hammers and the wall was cut away at the base from the concrete floor slab. A subcontractor, Emsco Concrete Cutting Co. of Los Angeles, handled this work.

On the roof of the building, two consoles—one for each row of jacks—controlled the lifting operation. The jacks raised each section in 3-in. stages at a rate of about 2 ft per hr. American Bridge superintendent Lou Hack and his assistant, James Finley, kept in constant touch with the control stations on the roof by means of two-way radios built into their safety helmets.

When a section reached final elevation, a crew secured %-in. bolts to fasten the lifting brackets to the tower columns. They also installed temporary steel struts between the legs of each rigid frame and the jacking towers.

After all four building sections had been raised, the general contractor placed earth fill to support a new concrete floor slab at the higher elevation. They also poured new concrete footings to support the rigid frame bents.

to Raise Structure



BUILDING BACKWARDS—After all four building sections have been raised by jacks, contractor places earth fill to support new con-

crete floor slab. After pouring new concrete footings to hold rigid frames, crew will dismantle towers and trusses to complete the job.

IN WATER (BELOW)—Crane places bracing for cofferdams. When bracing is completed, an intermediate water level in outer cells reduces pressure on the walls.

ON LAND (ABOYE)—Only a single wall of sheeting is necessary for the excavation. The pile driver is installing timber piles that support the concrete tunnel liner.

Four-Level

By JOHN SILINSH, Assistant Editor

DOUBLE-WALL cofferdams surrounding a cut-and-cover tunnel excavation in Louisiana allow the contractor to maintain an intermediate water level between the walls to reduce water pressure on the cofferdams.

By driving two straight runs of sheet piling, the contractor was able to use lighter structural members for the complex bracing system that supports the cofferdams.

Baltimore Contractors, Inc. of Baltimore are building the approaches and a 960-ft tunnel that will carry two lanes of traffic under the Intracoastal Waterway Canal at Houma, La. The tunnel is being built in two stages, each



Bracing Holds Twin Cofferdams

To build a cut-and-cover tunnel, the contractor drives two walls of sheet piling to protect the site. A complex bracing system supports sheeting.

extending from a bank to the center of the 400-ft wide canal. Both the approach and canal sections of the tunnel are cut-and-cover.

In the canal, the tunnel is excavated through water and concreting is carried on in the dry after a tremie seal is placed. Sheet piling protects the excavation along the entire tunnel. A single wall is sufficient on the banks, but a double wall was installed in the canal so that the cofferdam could be braced adequately. An intermediate water level is maintained in the outer cell to reduce water pressure on the inner walls.

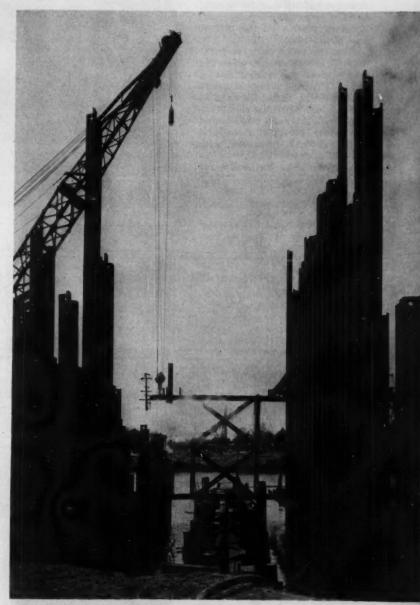
An extensive bracing system is needed to keep the cofferdam from failing when the excavation is dewatered for concreting. Maximum depth of the tunnel is 50 ft below the—water level in the center of the canal. Various levels of the bracing system (see sketch) were installed as excavation and dewatering progressed.

After preliminary excavation in the canal bottom, Baltimore Contractors installed the cofferdam for one half of the tunnel. Most straight runs of the cofferdam were made with L. B. Foster MZ 32 sections, but a few portions were made with MZ 38's. Corners were formed with C 38 A, B and C sections.

At the start of the pile driving, the contractor used a McKiernan-Terry 9B3 hammer. Later, a Delmag D-22 diesel hammer drove the piles to the required depth.

A job-built templet was used to guide the piles into position. In the canal section of the tunnel, special falsework was necessary to support the templet.

Two rows of timber piles in each outer cell of the cofferdam supported the falsework. The rows were 10 ft apart, and the piles were spaced on 12½-ft centers. Piles in the two rows



PILE DRIVING—Job-built templet on top of timber falsework guides two rows of sheet piles into position while a McKiernan-Terry hammer handles the pile driving.

FOUR-LEVEL BRACING . . .

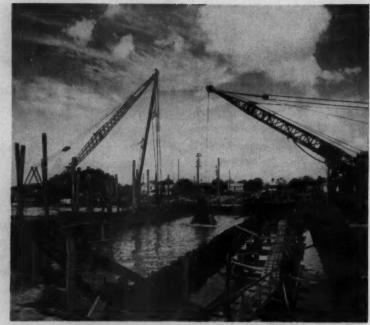
continued

were connected with 6x12's that were bolted to the piles and supported a catwalk.

Steel bracing for the sheeting was fabricated during the pile driving. After completing the cofferdam, Baltimore Contractors excavated and dewatered the site in stages and installed the bracing as the excavation progressed. Total excavation on the project was about 165,000 yd.

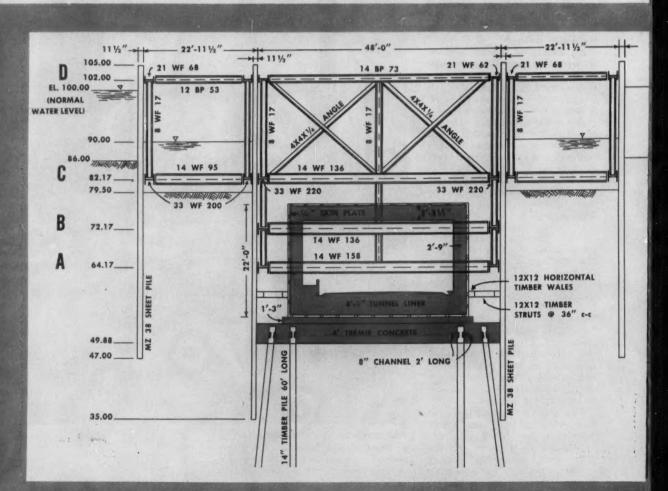
First the outer cell was excavated to elevation 80.00 while the water level was maintained at 100.00. Two floating Whirleys equipped with clamshells handled the digging. When the canal bottom in the outer cell was lowered sufficiently, the bracing for level C (see sketch) was placed with vertical hangers.

Next the inner cell was exca-



EXCAVATION (ABOVE)—Crane with clamshell bucket excavates through water.

BRACING (BELOW)—Four levels of bracing support the double-wall cofferdam.





STURDY STEEL—Crane places bracing made of heavy structural shapes. Horizontal

bracing for lower levels is placed with hangers and welded to wales after dewatering.



UNDERWATER WORK—Divers with hand iets cover areas the clamshell can't reach.



MANUAL WORK—Hand digging is necessary for excavation under the bracing.



OBSTRUCTION — Cypress stumps under canal are hard to move and cause delays.



A WHOPPER—Biggest stump in the excavation was II ft in dia and about 16 ft long.

vated to elevation 70.00, and wales for levels B, C, and D were placed with hangers. The water level remained at 100.00. Struts for bracing levels C and D also were hung in position.

Then the entire cofferdam—both inner and outer cells—was dewatered to elevation 80.00 so that welders could attach and block the wales to the sheet piles and bolt the trusses to the wales. All bracing in the outer cells was completed, and the water level was raised to elevation 90.00 in these cells.

In the inner cell, additional dewatering to elevation 70.00 permitted installation of the bracing at level B. The wales were welded to the sheeting and the bracing was welded and bolted to the wales.

Finally, the inner cell was dewatered to elevation 62.00, and the bracing for level A was welded in position. This completed the bracing system and permitted the excavation to continue after flooding the inner cell to elevation 93.00. Again, clamshells worked through water until the required depth for the bottom of the tremie seal was reached. At the center of the canal this elevation is 49.88; the tunnel slopes upward toward both ends.

Obstructions Slow Excavation

Excavation was slow because the bracing was in the way and the ground contained many old cypress stumps. Baltimore Contractors had to remove more than 100 stumps at about elevation 75.00. Half of them were at least 4 ft in dia; the biggest one was about 11 ft in dia and 16 ft long. Hand digging was necessary to provide access to the stumps so lines could be secured for lifting them out of the excavation.

Digging through water was also a problem. The clamshell could not reach all parts of the site, and hand digging was impossible because of the water. To help out here, Baltimore Contractors hired divers who jetted the dirt away from the sheeting and the bracing so the clamshells could reach it. The divers worked with 6-in. jet pumps.

To speed the jetting, the contractor used an assembly that consisted of two pipes attached to a flat steel plate. Eight nozzles at the lower end of the assembly directed the blast away from the

continued on page 120

Announcing

3

NEW STOODY

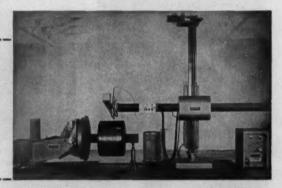
Automatic Welding Systems!



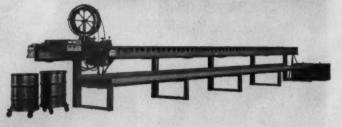
STOODY CRUSHERMATIC—A compact, versatile system for automatically rebuilding and hard-facing crusher rolls in position. It enables the welder to work outside the crusher chassis in comfort and clean air. The Crushermatic consists of a motorized carriage riding a track which is suspended over the crusher roll. Wire is supplied to the carriage by any standard semi-automatic wire feeding unit. Uses a 400 amp power supply but 600 amps are preferable. Versatile electronic controls provide proper sequencing for a variety of circumferential and transverse welding patterns. The Crushermatic is portable by one man and is slipped into permanently welded brackets when in use. It deposits up to 20 lbs. per hour—300% to 400% faster than manual welding and 200% faster than hand-held semi-automatic welding.

Stoody has long been the recognized leader in alloy wires for automatic hard-facing as well as for hard-facing rods and electrodes. No other manufacturer offers equal experience or a product line so versatile and complete. Now Stoody augments the best hard-facing materials available to industry with a whole new line of automatic welding machines covering specialized and general needs. Before investing in any automatic welding machines check with Stoody... pioneers and developers in the field of hard-facing, manufacturers of the latest designs in AUTOMATIC WELDING SYSTEMS!

STOODY MODEL U W UNIVERSAL AUTOMATIC WELDER—The Model U W provides a complete welding system capable of cylindrical, conical and straight line welding. The 3000 lb. capacity positioner tilts the workpiece through a 120° angle and is equipped with power elevation and thyratron controlled rotation. All electrical controls are unitized in a portable control panel for maximum operator convenience. Ram type manipulator has a vertical travel from 6" to 8"-6"; Horizontal travel: 10; Travel speed range: 5 imp to approximately 60 ipm. Manipulator mast rotates through 360°. Power source: DC, constant potential selenium rectifier type. Input: 220-440 V, Output: 500 amps at 40 V 100% duty cycle. 5 point slope control.



STOODY MODEL T L DUAL-HEAD TRACK LINK WELDER—Provides dual welding heads with wires supplied from twin Payoffpaks for fast, efficient rebuilding and hard-facing. Extremely rugged construction. Features: Special gear-type wire feed rolls; positive high frequency starters; wider, lower bed for easier accessibility and greater capacity; heavy-duty double worm reduction gear box with DC variable speed travel drive motor. Unitized control panel. Bed length 40'; Bed width 46"; Bed height only 24"; Power: 2-500 amp constant voltage 100% duty cycle 220-440 V power sources.



• For full information on all STOODY AUTOMATIC WELDING SYSTEMS see your Stoody dealer (check the Yellow Pages of your phone book) or write direct.

STOODY COMPANY

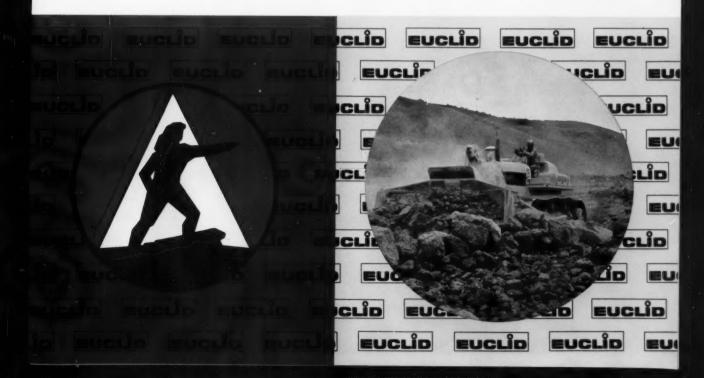
11902 East Slauson Avenue • Whittier, California

Circle 110 on Reader Service Card





MORE JOB . LOWER . WITH THE VERSATILITY OPERATING COSTS 'EUC'C-6



EUCLID C-6 LOWEST COST

Saves time and labor . . .

Job proved components and unsurpassed accessibility for day-to-day maintenance, as well as major repair work, keep downtime and operating costs to an absolute minimum. There's a big difference between the C-6 and its closest competitor . . . for example:

Service accessibility . . .

Fast, easy access to major components cuts repair and replacement labor.

- O save 7 hours on radiator replacement
- O change a drive sprocket 5 hours faster
- O 17 hours saved on recoil system replacement
- O engine replacement in 6 hours less

These are typical times for removal and replacement without the prior removal of any integral components . . . think what these savings in time and labor can mean in lower operating costs and increased productive work time!

Power train . . .

Proven components . . . GM 6-71 engine. Allison Torqmatic Drive and Euclid planetary final drive ... dependable, efficient and balanced, it delivers more of the rated engine horsepower to the drive sprocket than any comparable power train ... and parts and service are readily available to owners everywhere!

Lower cost engine parts . . .

Individual engine parts, such as pistons, rings, liners and connecting rods, are up to 72% less in cost than for more limited production engines ... a fan-to-flywheel engine replacement costs only one-half to two-thirds as much in the C-6!

See a "EUC" C-6 at work and see the big difference that pays off in lower cost!



TRACTOR IN THE 200 H.P. CLASS ... and the most versatile, by far





DOES MORE WORK...and a better job on more kinds of work

Because the C-6 is the most versatile crawler in its class, it's a more productive tractor. Matched power train...full-power shift...fast-as-a-fox response... better balance with any attachment... and easy operation... these are features that enable the C-6 to handle more work better and more efficiently.

When it comes to over-all productivity... on all kinds of tractor work...the "Euc" C-6 has earned a reputation for remarkable performance. Owners and operators alike report that it has more versatility and is more useful for a wide range of work from side sloping to the heaviest dozing and ripping.

You really have to see a C-6 at work to see what this versatile crawler can do in getting more work done . . . cutting costs and protecting your profits!





'EUC'C-6 VERSATILITY **CUTS CRAWLER COSTS**

No other crawler in its class can do so many jobs so well at such low operating cost . . . no wonder this Euclid is the talk of crawler users everywhere!





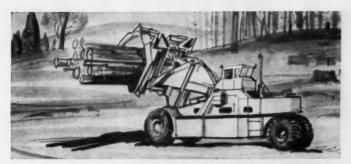






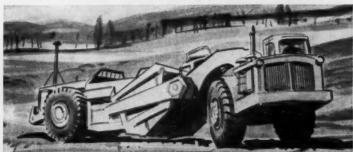


ALLISON speeds big loads TORQMATICALLY



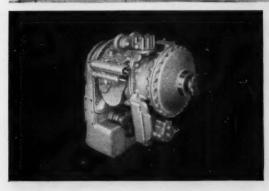
IN "LUMBER JACKS"

Despite a 70,000-lb. lift and carry capacity, the Wagner LJ 3-70 Lumber Jack is designed for fast work in mass-production operations. Its CRT-5630 TORQMATIC DRIVE lets the operator quick-shift at full throttle to speed loads—one reason why it is standard equipment in this machine.



IN TWIN-POWER SCRAPERS

One contractor who owns a Euclid TS-24 Twin-Power scraper reports: "One Twin is equal to five 130-h.p. crawlers with 10-yd. tow-type scrapers." Another says: "One Twin is equal to three 12-yd. self-propelled scrapers plus pusher." Typical? You bet. And the CRT-5630 is one of the TORQMATIC team members that make twin power possible.



IN ANY 200-300 H.P. UNIT

For that scraper, king-size loader or four-wheel prime mover, you'll find faster job cycles and lower maintenance costs with the job-proved CRT-5630 TORQMATIC DRIVE.

It has 3 speeds forward and 3 reverse, planetary direction and range gearing, transfer gearing drop box incorporating frontand rear-output flanges. With six choices of TORQMATIC converters to give that perfect engine match, the CRT-5630 is ideal for a wide range of machines and jobs.

Want more information? Send for the fact-packed CRT-5630 brochure today.



The world's most complete line of hydraulic drives

Over 980 models used by 108 manufacturers in 100 to 525 H.P. equipment

| Allison Division of Dept. CM-2, Indian Please send me app CRT-5630 TORQMATI | apolis, Indiana lication data on yo | ur F |
|--|--|-------|
| Name | | |
| Title | | |
| Company | | |
| Address | | |
| City | | State |

€ Circle 114 on Reader Service Card

MAY, 1961

Circle 115 on Reader Service Card

EXPLOSIVES



ENERGY...

vs. Mechanical Energy

Cheaper blasting materials and improved drilling equipment have reduced the cost of explosives energy to the point where it is doing work formerly reserved for mechanical equipment. By putting more of this low-cost explosives energy to work, machinery operates more efficiently, costs are lowered all along the line.

Smart, profit-minded operators are taking a closer look at the cost of mechanical energy vs. explosives energy and they are coming up with important savings in machinery, manpower, and time—for example:

In coal stripping, explosives force is used to move up to 50% of the overburden directly on to the spoil pile. Mechanical handling costs are reduced, and coal is uncovered more rapidly.

In open pit ore mining, explosives factors are being designed to gain additional fragmentation. Much of the material by-passes the primary crusher. Production is speeded, overall costs lowered.

In quarrying and construction, operators are finding it no longer pays to blast rock just hard enough for equipment to handle it. They are taking advantage of lower drilling and blasting costs to gain more fragmentation and displacement. And in the process they are making important savings in wear on crushers, dipper teeth, wire rope, and truck bodies. They

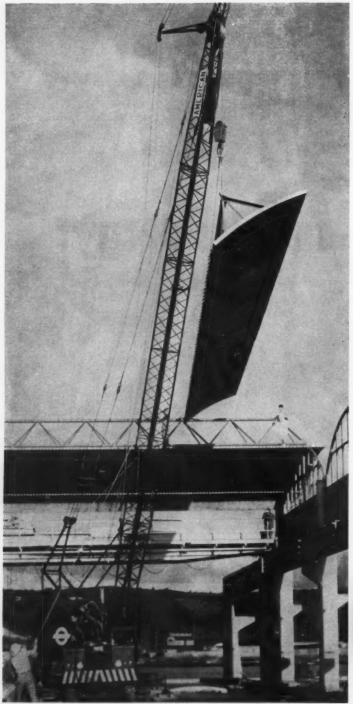
are reducing operating costs, eliminating production delays.

The economics of drilling and blasting have changed. Looking for ways to reduce blasting costs alone is not enough. The real savings come when you look at explosives energy as a way to reduce overall operating costs.

For a closer look at some of the ways explosives energy can lower your costs all along the line, look to Atlas' full line—the only full line in the industry. Expanded plant facilities are now in production at Joplin, Missouri to assure ready availability of all products. And to give you faster, more flexible local service, new distribution facilities are being established coast to coast. Call in your Atlas Representative. His experience with the newest advances in explosives, blasting agents, and blasting techniques can help you measure the relative economy of explosives energy vs. mechanical energy in your operation.

ATLAS POWDER COMPANY Explosives Division · Wilmington, Del.





problem: erect 9 x 72 ft. roof slabs... 3 inches "thin"

On this job, 48 prestressed roof slabs measuring 9 x 72 feet — and only 3" in cross section — had to be spotted into position. The big problem: to place these "eggshell thin" concrete slabs without breakage.

An AMERICAN 300 Series truck crane was called in for the assignment. Here's how Tom Anderson, of Anderson, Birkeland & Anderson, tells of the operation "This AMERICAN crane erected 48 shell sections, each weighing 11 tons, and 17 V-beams, each weighing 13 tons, for our new building. In the process, not a shell section or beam was damaged. We are very well satisfied with the work done by the AMERICAN crane."

You never know when you'll run up against a tough erecting job like this. That's why it pays to shop carefully, and ask a lot of questions before you buy any erecting crane. Do this, and you'll see why more and more contractors are switching to AMERICAN.



Special trusses were needed to support these thinwall slabs during transport and erection. As sections were placed, protruding rebar stubs were welded to those on adjacent slabs, then filled with grout. The completed structure will house facilities for Concrete Technology, of Tacoma, Washington.

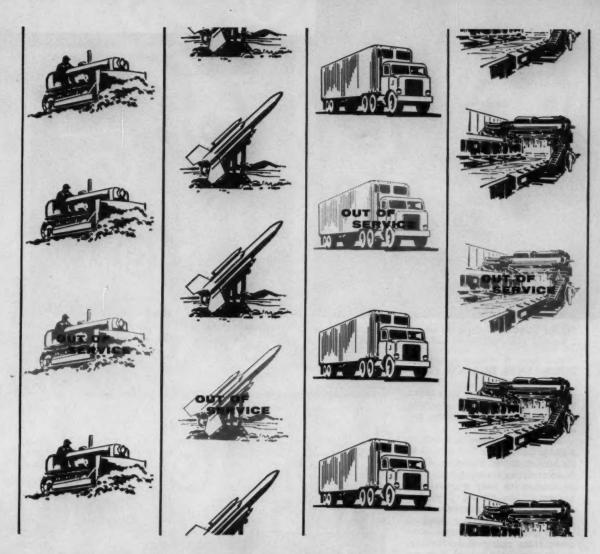
EXCAVATORS 1/2 to 41/2 yds.

CRANES 12½ to 110 tons DERRICKS-HOISTS to 800 tons

REVOLVER CRANES to 400 tons FORGED FITTINGS
FOR WIRE ROPE
AND CHAIN
(Crosby-Laughlin Div.)



AMERICAN HOIST and DERRICK COMPANY ST. PAUL 7, MINNESOTA



Dependable ROLLWAY BEARINGS help keep your down-time low

When a bearing "goes", your machine stops.

That's why it pays to call in Rollway. Especially when reliability is a must.

At Rollway, you can choose from a wide selection of sizes and types with maximum capacities . . . for normal, low or high temperature operation. All meeting or exceeding RBEC requisites in Classes 1 to 5.

You'll find that Rollway meets your needs exactly — in commercial grade, precision, or ultra-precision bearings. To get the bearing you want in a hurry, or to start R and D on the bearing you've been dreaming about, just call or write Rollway Bearing Company, Inc., Syracuse 1, New York.





TREMIE CONCRETE—Crane and two-man crew place concrete for a 4-ft-thick tremie seal on the bottom of the tunnel excavation.



STRUCTURAL CONCRETE—Rail jumbo serves as inside form and skin plate as outside form. Plywood panels form ends of tunnel pours.

FOUR-LEVEL BRACING . . . continued from page 109

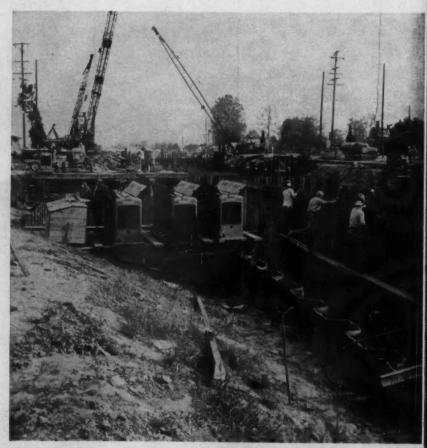
plate. This assembly was lifted into position by crane and was used along the sheet piling recesses.

When the clamshells, aided by jetting, finally dug the tunnel to its correct depth, Baltimore Contractors drove timber piles in the excavation to help support the bottom of the tunnel. The piles served a twofold purpose: During construction, they resisted uplift and kept the tremie concrete from rising and cracking. In the completed tunnel, they act as bearing piles under the tunnel structure.

The timber piles are 60 ft long and 14 in. in dia with a 7-in. point. Two notches are cut on opposite sides of the pile at the top and a 2-ft-long 8-in. channel is attached to each notch. The channels act as keys within the concrete. A 10B2 McKiernan-Terry hammer drove the timber piles; the channels were attached to the piles before driving.

Equipment for excavation and pile driving included a 3900 Manitowoc crane, 87-M and a 40-A Marion cranes, and one Bay City crane. Two steel barges, two 600-cfm compressors, and six 125-cfm compressors completed the equipment line-up for these operations.

With all the piles in place, the excavation was ready for a 4-ftthick tremie seal. The tops of the



SKIN PLATE—Welders complete a section of the 1/4-in-thick skin plate that contributions. Rebars protruding through the plate hold ties during concreting operations.



PILE PULLER—Heppenstall scissors-type puller with 50-ton capacity removes sheet piles after concreting is completed and the excavation is backfilled to its original elevation.

piles and the channels were embedded in the concrete. When the tremie concrete was in place, the site was dewatered and construction of the tunnel liner followed.

Dewatering equipment used during the different stages of construction included one 125-hp 10-in. pump, one 75-hp 8-in. pump and three 4-in. pumps. All of these were electrically powered and equipped with floats for automatic starting and cut-off. Three 6-in. jet pumps, three 6-in. centrifugal pumps, and three 4-in. centrifugal pumps also worked on the job. Eight gasoline powered 400-amp generators supplied electric power.

Concreting the Tunnel Liner

Once in the dry, the contractor poured a foundation leveling slab on top of the tremie concrete to provide a smooth base for the tunnel structure. The tunnel is a 22x36-ft rectangular concrete tube covered with a ¼-in.-thick steel skin plate on all four sides.

The skin plate for the bottom of the tunnel was placed on the leveling slab. Concrete for the bottom of the tunnel is 4 ft 1 in. thick. Sides of the tunnel are 2 ft 1 in. thick, and the roof is 3 ft 5½ in. thick. Both sides of the

tunnel have a curb and a drain and one side has a sidewalk.

Skin plate along the two sides and the top of the tunnel is covered with Gunite and reinforced with wire mesh. The mesh is attached to studs spot welded to the plate. Sixteen 300-amp welders handled installation of the skin plate and the mesh.

During concreting of the tunnel liner, timber wales and struts were installed between the sheet piles and the skin plate to prevent the plate from deforming. The struts were 12x12 timbers placed on 36-in. centers between 12x12 timber wales (see sketch). Bracing in levels A and B was removed during concreting of the tunnel structure.

To speed concreting, Baltimore Contractors bought a specially built jumbo form for the inside of the tunnel. The rail-mounted form was built by Blaw-Knox.

The inside of the tunnel is lined with tile. To simplify installation of the tile, the contractor placed sheets of it on top of the jumbo form and poured concrete for the tunnel roof right on the tile. When the form was stripped the tile was in place, eliminating one operation. Tile along the walls was installed by

scarring the concrete and bonding the tile to it.

After completing one half of the tunnel, Baltimore Contractors backfilled the excavation and removed the struts and the bracing as the level of the backfill rose in the cofferdam. When the canal bottom was reached, the inner and outer cells of the cofferdam were flooded, and sheeting was removed to permit navigation. The sheet piles were pulled with a Heppenstall scissors-type rig with 50-ton capacity.

Mid-Canal Cells Work Twice

When this operation was completed, the contractor started on the other half of the tunnel working from the opposite bank of the canal. Special change-over cells in the center of the canal permitted switching the work from one end of the tunnel to the other. The change-over section was 65 ft long, and the inner cell common to both halves of the tunnel was 30 ft long. Inner walls were 16 and 19 ft from the outer change-over walls.

Work in the central cells was similar to that on the end of the tunnel. Dewatering, excavation, and the installation of bracing closely followed the same operations in the inner and outer cells of the first half of the tunnel.

An additional consideration at mid-channel was the construction of a drainage sump. This required a wider structure to house pumping equipment, but it did not present any unusual problems to the contractor except that a wider cofferdam was needed at this spot.

When completed, the tunnel will alleviate traffic problems on Houma streets. Movable bridges now span the canal and heavy water traffic causes tie-ups on land every time the drawbridges are up.

Men on the Job

In charge of the project for Baltimore Contractors, Inc., is Albert C. Klingenberg, vice president of construction. Project manager is Edwin C. Cubler. Howard W. Morgan, the company's chief engineer, is in charge of engineering at the Houma tunnel. General superintendent is F. M. Lohr, and assistant superintendent is M. Archer.

Fromherz Engineers of New Orleans designed the tunnel, and Singstad & Baillie of New York are supervising the construction.



What it is

The business end of a powder-actuated tool, made by Ramset Fastening System. It's called the Duo-Jobmaster.®

What it does

Makes fastenings to steel and concrete. You can attach furring strips to concrete in less time than it takes to tell about it. Or to steel. Sprinkler pipes too. And door bucks. Curtain wall brackets. Heating ducts. Almost anything.

The fastenings are made with male or female threaded studs. Or with drive pins (nails). Over 140 different fasteners are currently available.

How it does it

The fastener and a 22 calibre blank cartridge are inserted in the tool. A squeeze of the trigger and the fastener is in. This includes studs and drive pins that are over 4 inches long! Numerous interlocks prevent it from being operated prematurely. And easily interchangeable barrels convert it from ½" to ¾" work.



What it saves you

Time, money, effort. No time consuming drilling or plugging is required. There are no expansion bolts to insert. In some cases fastenings can be made every 15 seconds. Others take a little longer.

Five years of extensive use by contractors have shown that the fastenings made by this tool are at least the equal of those made by any other method. But it makes them faster and with vastly less effort. It's made by Ramset and it's the finest powder-actuated tool in existence.

Write for more information or call your local Ramset dealer. He's listed under "Tools" in The Yellow Pages.

WINCHESTER-WESTERN DIVISION Olin 281-F Winchester Ave., New Haven 4, Conn.

Circle 122 on Reader Service Card

How Nello L. Teer Co.

cuts tractor costs at sand and gravel pit



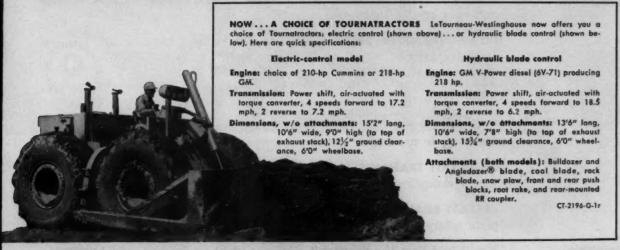
The Nello L. Teer Company of Durham, North Carolina, gets a lot for its money with the LW Tournatractor® it uses at its 60-acre sandand-gravel pit near Erwin, N.C. Working in a 4-mile radius, this rubber-tired tractor maintains haul roads, stockpiles sand, dozes material into hoppers, pushes rail cars... handles any and all tractor work. Tournatractor often covers up to 100 miles in a 10-hr day.

You'd expect high-maintenance costs for a tractor assigned to a schedule like this. But not for Tournatractor! Notice the tires. With over 870 hours on them, they still look like new, have been trouble free. Electrics? "They give us no trouble at all," reports operator J.T. Byrd, "we haven't even changed the contact points. This tractor sure is economical to run and it does a grand job!"

Better protected from grit and wear

The mechanical parts in Tournatractor are protected from grit and wear...giving Nello L. Teer higher efficiency, with more hours of continuous tractor service. Tournatractor gets high efficiency through its enclosed anti-friction drive and fewer moving parts, and in many materials this tractor's big, low-pressure tires outwear tracks by as much as 2-to-1. In highly abrasive materials, tires often give up to 4 times the service of tracks. What's more, time-consuming track-assembly lubrications are eliminated.

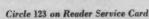
Let us show you how Tournatractor can help you increase output and lower your operating costs. We will be glad to arrange a demonstration.



LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit







SPEEDPULL is your best profit insurance on long-haul earthmoving because it...

Here's what's DIFFERENT and BETTER about the Speedpull prime-mover

HYDRAIR* SUSPENSION on front wheels eliminates need for axles, springs and their related maintenance costs.

POWER-TRANSFER DIFFERENTIAL keeps production high on soft, slippery terrain, on slopes, curves.

276 HP and short-coupled drive-train deliver ample power for fast loading, quick acceleration, speedy hauling.

37.7 MPH speed cuts cycle times to minimum. Smooth ride encourages operators to *use* higher speeds.

DROP-OUT TRANSMISSION and other low-cost maintenance features help reduce downtime for bigger profits.

BIGGEST BRAKES in the industry plus new Spot-Turn brakes assure complete safety, longer unit life.

You'll find that the Speedpull gives you the best power-to-weight ratio in its class, the shortest turn-radius, highest front clearance, and many other "best-of-class" advantages. They spell out *p-r-o-f-i-t-a-b-i-l-i-t-y*.



sets speed records with single Fullpak® scraper ... production records with tandem Fullpaks



Get the full facts: by mail or in person

You can now get the complete Speedpull story in this new 16-page bulletin. Your LeTourneau-Westinghouse Distributor has copies, or you can write direct to the factory at Peoria, Illinois. Best bet: call your LW Distributor for full details on this long-haul profit-builder.

*Trademark CSP-2297-DC-2

LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

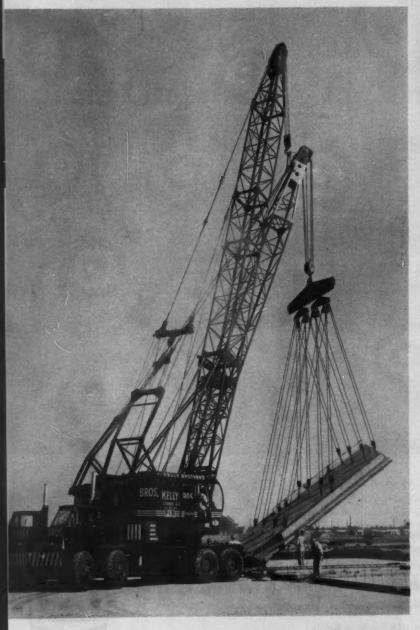
A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Circle 125 on Reader Service Card



One Crane Helps Another Raise 45-Ton Precast Concrete Panels





HELPING HAND (LEFT)—To raise 45-ton precast concrete panel, a truck-mounted P&H crane with 80-ft boom lifts on 70-ft boom of companion crane. After panel is vertical, crane with equalizer bar positions it.

CAREFUL PLANNING paid off for a California contractor who has just raised some of the heaviest precast concrete wall panels ever used.

To erect panels weighing as much as 45 tons each, the contractor teamed two heavy-duty truck cranes and made lifts through 12 pick-up points on each of the big panels. Instead of two cranes working on the same spreader bar, the 80-ft boom of one P&H crane lifted up on the boom tip of another crane.

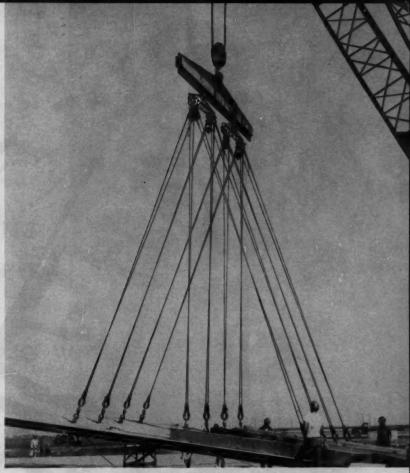
The pick-up arrangement was devised by Howard A. York, chief engineer for Associated Construction Co. of South San Francisco. Associated is general contractor for a 313,000-sq-ft food processing building under construction at Davis, Calif. Rigging and lifting work was handled by Kelly Bros. of San Jose, Calif.

Altogether, the project called for the erection of 128 precast panels ranging up to 8-in. in thickness and up to 42½ ft in height.

Bob McGinnis was project manager and Oscar Washam was general superintendent for Associated



SPREADING THE STRESS (ABOVE)—
Twelve separate pick-up points spread lifting
stress through panel. Each pick-up
point has built-in inserts capable of resisting 16,000 lb of tension
and up to 12,000 lb of shear.



RIGGING CABLES—The four slings are rigged with 183 ft of 1/4-in. cable. End of each sling is tied off at an equalizer bar and passed through sheaves at the pick-up point and through sheaves on the equalizer bar.

SHARING THE LOAD (LEFT)—To maintain equal load at each of 12 pick-up points, two small equalizer bars are mounted on one large equalizer beam.



BRACING PANELS—After panel is in position, it is braced with a pair of 36-in. cables on each side.

Turnbuckles on the cables permit contractor to take up extra slack.





By integrating demolition and erection sequences, an old suspension foot bridge was dismantled in a week and replaced with a new one in 18 days.

Old Towers Help to Speed Erection of New Bridge

COMING DOWN—Working from platform suspended below old bridge deck, crews burn away one 29-ft-long panel at a time. The deck was cut into pieces that two men could handle.

KEEPING IT LEVEL—Platform is moved along after each panel is dismantled. Below, crews take up on come-alongs to keep it level. Eye-bar chains of the old deck support platform.





CREWS from Bethlehem Steel Co. dismantled an old suspension foot bridge in 6½ days and erected a new one in the same spot in 18 days. The new bridge spans a 250-ft-wide, 100-ft-deep gorge on the Cornell University campus at Ithaca, N.Y.

The rapid construction pace resulted from a carefully worked-out plan that called for leaving the two towers of the old bridge temporarily in place to help brace the new towers.

Bethlehem handled the job in two stages. First, crews removed all sections of the old bridge except the towers. Then, after another contractor built the anchorages, Bethlehem returned to erect the new bridge and dismantle the old towers.

The superstructure of the old bridge consisted of nine 7x29-ft steel panels planked with 2-in. timbers. It was suspended from a series of 11/8-in.-dia steel hangers attached to a pair of 1x3-in. double eye-bar chains that were strung between the two 34-ft-high towers. The walkney was 51/6 ft wide

34-ft-high towers. The walkway was 5½ ft wide. To keep a balanced load on the eye-bar chains, the contractor wanted to dismantle the center panel and work simultaneously toward each shore. But this procedure was not possible because the south approach to the bridge was too rugged and steep for heavy equipment. Instead, Bethlehem engineers developed a plan that allowed crews to unload all but one of the panels on the north shore.

continued on next page



OLD TOWER HELPS-Because of rugged terrain, tower was assembled in an inclined position along canyon bank. Line reeved through old tower and attached to truck crane raises it.

SO DOES CRANE-After it has been pulled across gorge on messenger cable, the 2-in. bridge strand is held by crane while crew prepares saddle for it on top of new tower.



OLD TOWERS HELP TO ERECT NEW BRIDGE . . . continued

Following this plan, crews skipped the first panel at the south end and started dismantling operations with the second panel. Work proceeded in one direction only-toward the north shore. After eight consecutive panels were removed, the crew backtracked to dismantle the south shore panel.

The dismantling crew worked from a 10x30-ft steel platform with a metal mesh floor. For ease and safety in dismantling steel, the platform, which hung about 4 ft below the bridge, was slightly

larger than the panel sections.

This 1,500-lb platform was suspended from the eye-bar chains with %-in. safety cables. To keep the platform level, workmen let out or took in on a pennant that controlled the length of the supporting cable. After each panel was stripped, the platform was advanced by a %-in. lead line attached to a 2-ton hoist bolted to the north tower.

Panels Cut One At a Time

Working from this platform, crew members cut the bridge apart with an acetylene torch, one panel at a time. Special care was taken to keep each panel from collapsing as it was taken apart. Here's the procedure that was followed for a typical panel:

After removing the timber decking, workmen cut loose 5-in. channel cross pieces and ½x2-in. steel bars that served as diagonal braces. Then they removed the 10-ft-long, 4x3x%-in. angle and knee braces at the midpoint of the panel. Next, lattice trusses on each side of the bridge were removed in quarter sections, top sections first. These truses, which were at 6-ft centers, consisted of double 21/2-in, angle top and bottom chords and 11/2in. lattice bar diagonals. The final step was to remove 7-in. I-beam cross members and the hangers.

After eight panels of the structure were removed, the crew reached the north shore. They stored the work platform and began to dismantle the remaining panel at the south end.

To remove this panel, they installed a 1/2-in. wire rope tieback between the south tower and the truss sections for additional support. Then, working for

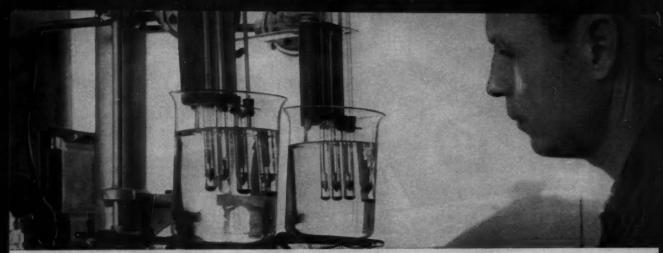
the deck, they cut the panel apart.

After the suspended structure was stripped away, the double eye-bar chains were removed, one at a time. A two-part line of %-in. wire rope was connected to each chain about 30 ft out from the south tower. The other end of the line was connected to a five-ton hoist at the top of the south tower. Then the end of the chain was cut just beyond the tower and lowered into the gorge while the north end remained fastened to the north tower. A 25-ton crane on the north shore pulled the chains out of the gorge and workmen cut them into sections. That completed the dismantling operation.

When Bethlehem crews returned to the job site only the two old towers remained.

As soon as the 58 tons of structural steel arrived from Bethlehem's Leetsdale, Pa., plant, crews began to erect the new bridge. The structure has a 270-ft main span, a 56-ft north span, a 45-ft south span, and two 41-ft-high steel towers. The superstructure, which is suspended from %-in.-dia wire rope hangers attached to 2-in.-dia bridge strands, consists of nine 30-ft-long steel panels covered by

continued on page 134



Dropping point test shows how greases react to heat. Beaker fluid has been heated to 390° F. All greases tested except Darina (second tube from left) have passed from solid to liquid state.

BULLETIN:

Shell reveals the remarkable new component in Darina Grease AX that helps it last up to 3 times longer than soap-base greases

Darina® Grease AX is made with Microgel*, the new thickening agent developed by Shell Research.

Severely tested for 18 months, Darina AX with Microgel proved its ability to resist washout, even in mud and slush—stay smooth and buttery at high temperatures—and reduce maintenance.

Read how this superior new multi-purpose grease can help solve your lubricating problems.

THERE IS no soap in Darina Grease AX. No soap to melt away—wash away—or dissolve away.

Instead of soap, Darina AX uses Microgel—a development of Shell Research.

What Microgel does

Because of Microgel, Darina AX has no melting point. It won't run out of bearings.

Even compared to soap-base greases, Darina AX provides significantly greater protection under adverse service conditions.

Resists washout

Mix water into Darina AX and the grease maintains its consistency. It

shrugs off water—won't emulsify. For fleets that must operate in snow, slush, rain or mud—Darina AX is an ideal choice.

Longer lubrication life

Shell scientists tested Darina AX, under wet conditions, in a special device called an Oscillating Friction Machine.

Darina AX kept its lubricating qualities twice as long as a premium soda soap-base grease; 2½ times longer than a calcium-soap grease; 3 times longer than an aluminum-soap grease.

Results of field test

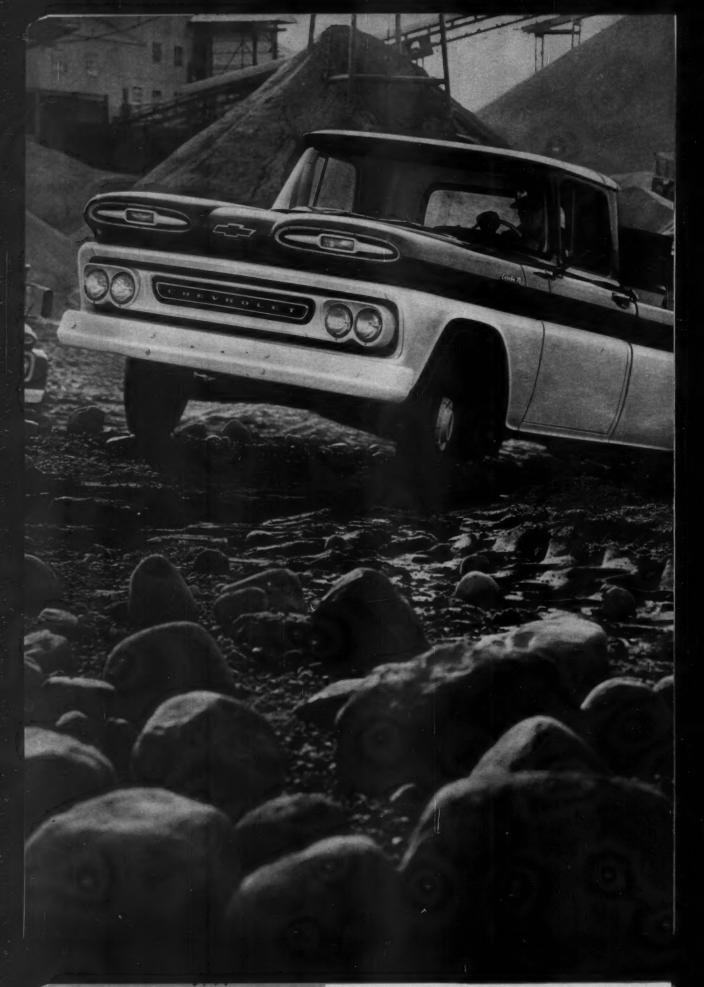
In a recent field test, 15 firms used Circle 131 on Reader Service Card Darina AX in chassis and wheel bearings of over 1000 vehicles. These buses, trucks and vans rolled up 30,097,000 chassis miles. The results:

- 1. Every company was pleased with the performance of Darina AX.
- 2. There wasn't one wheel bearing failure due to grease deficiency.
- 3. In many cases, re-lubrication schedules could be extended.

For details, see your Shell Representative. Or write: Shell Oil Company, 50 W. 50th St., N. Y. 20, N. Y.

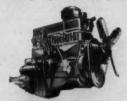


A BULLETIN FROM SHELL
—where 1,997 scientists are helping
to provide better products for industry



HERE'S WHY IT'S A GOOD IDEA TO GET A CHEVY

Because Chevy's wide choice of models (there are 15 of 'em!) means you'll get the right pickup . . . because each is engineered to the highest standards . . . because Chevy's rugged, smooth-riding build lasts longer, costs you less to own and keeps your profits at peak levels. Chances are, whatever you consider most important, you'll find Chevrolet has thought of it first, and done most about it. Whether you get a handsome Fleetside or handy Stepside model (or possibly a Corvair 95 Rampside or Loadside or one of a half-dozen four-wheel-drives) you'll soon be convinced that buying a Chevy pickup was the best idea you ever had!



The Chevrolet slant on economy makes the most sense of all, with the tight-fisted 235-cubic-inch Thriftmaster 6 (standard) leading the way. It's the most experienced money-saver going, one that's powered more payloads than any other engine in the business. It's famous for its stingy way with a gallon of gas and also for its rockribbed durability. It keeps your Chevy at work, making money, instead of in the repair shop, costing. And if you prefer the extra snap of V8 power, there's the eager, efficient Trademaster V8, 160horsepower strong and available at nominal extra cost in all conventional pickup models.



Chevy pickup bodies-61/2, 8 or 9 feet long-are tops in cargo capacity and convenience, with a long list of bonus-built features to keep them working better and looking their best from delivery to trade-in. Both Fleetside and Stepside models feature select wood floors for better footing and quieter going, with steel skid strips to ease loading and unloading. Extra strong grain-tight tailgates with anti-rattle latches and support chains minimize bulk cargo leakage and offer firm support for extra-long loads. Fleetside body sidewalls are double-walled in the lower section, for extra rigidity and protection of exterior surfaces against dents caused by shifting cargo.



PROFIT-***** PROTECTING

All of Chevrolet's 2-wheel-drive pickups feature years-ahead Independent Front Suspension design, with ride, roadability and ruggedness that are paying off for truckers everywhere. The reduction in driving effort and fatigue that makes a bigger day's work come easy is just one part of the three-way Chevy payoff. The same shock-cushioning action protects your cargo against damage en route, and also protects the truck itself against the bumps that can batter the life out of cab, body and chassis components. Sounds too good? . . . sample it for yourself at your Chevy dealer's, soon! . . . Chevrolet Division of General Motors, Detroit 2, Mich.

1961 CHEVROLET STURDI-BILT TRUCKS CHEVROLET

Circle 133 on Reader Service Card





BALANCING THE LOAD—To keep load even during construction, crews erected two center panels first (top photo). They were assembled on bank and carried into position by a six-ton-capacity trolley. Erection sequence for other panels is shown in drawing.



SPLICING PANELS—Workman with sledge drives home bolts in top chard that serve to splice the 30-ft-long, five-ton sections.

OLD TOWERS HELP TO ERECT NEW BRIDGE . . . continued

an 8-ft-wide concrete walk. Stiffening trusses are at 8½-ft centers and bridge strands at 8-ft centers.

A truck crane unloaded all steel at the north end of the bridge and sorted out the members for the south tower. This steel was hauled around the campus to a road 130 ft from the old tower. From there, it was skidded over the rugged terrain to the erection site.

Because the truck crane could not gain access to the site, the south tower steel had to be assembled in an inclined position on the sloping terrain and then tilted up to the vertical. The tower was raised by a load line attached to the new steel and reeved through a block at the top of the old tower. The other end of the line was strung to the truck crane on the north shore. When it was raised, the new tower was centered on anchor bolts on a footing alongside the old tower. Then it was lashed to the old tower and to an eye-bar imbedded in the concrete anchorage 45 ft away.

Finally, the new tower was guyed to the anchorage. Turnbuckles with an 18-in. takeup permitted tilt adjustment either toward or away from the old tower. In this case, the new tower was temporarily inclined 1 ft away from the old tower and toward the anchorage until the bridge strands were strung.

On the north side, where there was no access problem, the truck crane erected the tower with ease. The tower was supported in the same way and it also tilted 1 ft toward the anchorage.

With the tower tops remaining off true vertical, Bethlehem suspended two ¾-in.-dia trolley cables between the two towers and adjusted their lengths so that they sagged 15 ft at the center. Then a sixton capacity trolley strung the bridge strands across the gorge. The hangers were attached as the strand was unreeled from the base of the north tower.

Once the strands were properly placed in saddles atop the new towers, the crew adjusted the position of the towers with the tiebacks until marks on the saddles and strands matched. Saddle caps then were installed and tightened.

The bracing between the old and new towers was removed, and the old towers, which had served their purpose, were burned apart and scrapped.

To maintain a balanced load while erecting the new bridge, Bethlehem positioned panel five—the center panel—first. When this midspan assembly was in place, the crew erected the fully assembled section south of it (panel 6). To offset this load, the crew placed the first four panels from the south tower to the midspan section next. Then the three remaining sections on the north were positioned, working from the south toward the north tower.

Trolley Carries Panel Sections

The five-ton panel sections were moved into place by the trolley. Fabricated from various steel shapes, the 4x6-ft trolley rode on four cable wheels. Each wheel supported a three-ton-capacity chain hoist that was connected to an 8½-ft-long, 8WF17 spreader bar. To move a panel, wire rope slings at the ends of the spreader bar were lashed to the trusses.

All panel sections were moved from the north shore. Because a fully assembled panel could not be passed over another panel that was already in place, the south sections were erected in parts. Crews moved the trusses for these panels without the spreader bars. Instead, the trusses were suspended from the chain hoists, which were close enough to permit the trusses to be threaded through the midspans that were already in place. The trusses were spread apart when they reached their destination and connected to their hangers. Then cross members were erected from the south shore.

Panel sections were connected with two bolts in each top chord splice. The bolts were placed directly opposite each other in each side of the chord.

After placing the last panel, the crew removed the trolley and supporting cable. The final step called for pouring a 2-in.-thick concrete pavement on steel grid decking.

The project was under the direction of G. P. Bullard, manager of erection for Bethlehem's eastern district. T. J. Elder was project manager and P. P. Facchiano was resident engineer.

Where profit hangs on the end of a boom, let Koehring Truck Cranes carry the load



Under load or on the road nothing handles like a Koehring ... see your distributor today

| MODEL | MOUNTING | LIFT CAPACITIES rated at 85% of tipping load with outriggers |
|-------|--|--|
| 218 | 3-Axle Truck or Self-Pro- pelled Cruiser | 36,000 lbs at 10-ft radius |
| 305 | 3-Axle Truck or Self-Pro- pelled Cruiser | 50,000 lbs at 12-ft radius |
| 330 | 3-Axle Truck | 60,000 lbs at 15-ft radius |
| 445 | 4-Axle Truck | 90,000 lbs at 12-ft radius |
| 555 | 4-Axle Truck | 110,000 lbs at 12-ft radius |



K105

Scrapers Carving Away Hill Run Obstacle Course to Dump Area

TO PREPARE the site for a sewage treatment plant, contractors now are carving away a hillside while protecting its base against the ravages of the Pacific Ocean.

Traveling over a haul road sliced out of the California hillside, a fleet of heavily loaded scrapers must climb 1000 ft of 16% grade, make a hairpin turn, and then plunge down an 18% slope to dump spoil material in a rayine.

A. A. Baxter, Inc., of San Diego, is preparing a 1,450x500-ft site for the sewage plant on the western shore of Point Loma, near San Diego.

To protect the site against erosion, the contractor must also plug



TOUGH HAUL—Winding their way up a 16% grade, Caterpillar 631A and DW21G

a cove and a sea cave and erect a bin-type retaining wall to correct an irregularity in the shoreline.

A 25-ft-high sea wall will cap the 150-ft-wide mouth of the cove. Hauling and placing of 18,-000 yd of rock for this job is being handled under a subcontract by J. B. Stringfellow of Riverside, Calif.

Stringfellow's trailer trucks must back down a steep, winding road to reach the cove. Once at the bottom, the trucks dump their loads and a Northwest 80D crane with an orangepeel places rock across the mouth of the cove. Empty trucks are hauled up the 16% grade on the winch of a Caterpillar D8. After the entrance is plugged with rock, Baxter will bring the cove to grade with 60,000 yd of fill.

About 100 ft south of the cove, Baxter plugged a 30-ft-dia sea cave with an additional 4,000 tons of rock. Baxter also is building a 220-ft-long retaining wall made of 16-gage Armco coated ingot iron bins. Twenty bins, each mea uring 10x10x30-ft deep, are being embled and filled with

Problem Becomes Profit

To widen the plant site from 150 to 500 ft, Baxter must make a 350-ft-wide, 230-ft-deep side-hill cut and maintain embankments at a 1:1 slope. Baxter's \$650,000 contract calls for moving 800,000 yd of material, and



PROTECTING THE BASE—Trucks hauling rock to plug a sea cove back down a steep road, unload, and are hauled back up road by winch. Northwest 80D with orangepeel places rock.



scrapers haul material from a 230-ft hillside cut to form a site for a new sewage plant.

all but about 200,000 yd of it must be carried away from the site.

This might have created a serious problem; there is no spoil area near the job big enough to take the remainder of the material.

But the resourceful contractor turned problem into profit by selling 20,000 yd of fill to the Department of the Interior and negotiating a separate contract to build a parking facility for a nearby public monument. The remainder of the waste material is being dumped into a ravine near the site.

A fleet of twelve Caterpillar scrapers is moving material along the 2,200-ft-long haul road between the cut and the ravine. Two ledges carved out of the hill-side—one above the other—are used as separate haul and return roads. The scrapers make an average of 69 trips per hour and move about 11,500 yd in an 8-hr day.

Because the 4,400-ft haul and return cycle time is relatively fixed at 8½ min, Baxter must keep loading time at a minimum to increase moduction.

are getting the big-scrape of of the cut in an average time of one-half minute. Baxter split four Caterpillar D8's into two teams to tandem-push seven sideboarded Cat DW21's and five Cat 631 scrapers. The recently introduced 631 scraper units pick up a 21-yd load in 28 sec. The DW21's are packing 19 yd in an average of 35 sec.

Baxter helped cut loading time by equipping one of the D8's in each team with a ripper to shatter shale and limestone in the cut area. And when the other D8's are not pushing, they use their blades to keep the cut in shape.

The transmissions on the new 631's shift automatically from torque converter to direct drive to overdrive in each speed range. On this job, despite adverse grades, the 631's are traveling most of the haul route at 5 mph,

about 1 mph faster than the DW21's. They also are getting out of the cut faster.

Site preparations are scheduled to be completed later this month, and work will begin immediately on the new sewage treatment plant.

In charge of the site preparation for A. A. Baxter, Inc. is owner Alan Baxter. His brother, Peter, is job superintendent and Roland Helms is earthmoving foreman.



RETAINING WALL—Twenty 10x10x30-ftdeep Armco bins form retaining wall above sea cave. Bins will be filled with earth.

DOUBLE DUTY—When not tandem-pushing scrapers, Caterpillar D8's use rippers and blades to dig rocks and level off the cut.







Whichever they have to load, truck or gondola, McDonough's $4\frac{1}{2}$ yd Michigans do the job fast. Typical 12 yd semi takes 1 to $1\frac{1}{2}$ minutes, 70 ton railroad car five minutes or less.

Sister quarries share Michigan Tractor Shovel fleet, report

6 machines do the work of 12

At McDonough Brothers' two quarries near San Antonio, Texas, six Michigan Tractor Shovels are doing the material handling normally assigned a fleet of loaders and dozers at least twice as big.

Power, speed, and capacity of their five 262 hp 4½ yd Model 275A Michigans take care of all the heavy work (except shot rock loading) at both quarries, both crushers, and at an adjacent 7500 lb continuous-mix bituminous plant... while a smaller 1¼ yd Model 75A stockpile-loads the 4 and 6 yd trucks and handles scattered odd jobs.

All told, the Michigans regularly handle eight major jobs:

 Load all trucks hauling stockpiled materials produced by both crushing plants...twenty-four or more separate stockpiles.

- Dress all stockpiles.
- Load one-third of all 70 ton rail road gondola cars at both plants.
- Replace donkey engines for moving and spotting gondolas.
- Load all trucks hauling aggregates and sand to charge the bituminous plant.
- Truck-load finished bituminous materials.

- Clean quarry floors after blastings and push shots up to the heavy rock shovels for loading.
- Maintain all haul roads in all plant areas.

Michigans load in record time, get job assignments by 2-way radio

Loading time on all these assignments has proved exceptionally fast. A typical 12 yd semi is loaded in only 3 passes of a Model 275A's 4½ yd bucket and an average of 72 seconds. A typical 70 ton gondola car is loaded in 5 minutes or less.

Two-way radios help save time too. As a haul unit enters either Mc-Donough yard, the central control station located at the scale house radios the Michigan working nearest the required stockpile. Over the Michigan drives, fast as the truck. Time is also saved by radio-directing the speedy Michigans to other assignments over the one-half mile radius between the two quarries. With this system, maximum production is maintained . . . idle machine time virtually eliminated.

Dependability a prime reason why McDonough Brothers prefer Michigans

McDonough Brothers purchased their first Michigan five years ago—

In addition to loading and stockpiling, Michigans perform other quarry jobs such as floor cleanup, haul road maintenance and switching of 70 ton gondola cars.





Two new 25-ton Michigan Model 210 Tractor Wagons have also been recently added to McDonough Brothers' Michigan equipment spread. Replacing several large tandemdump trucks, the rear dump Michigans haul aggregates from hopper to assorted stockpiles up to 3,000 feet distant . . . and feed the bituminous plant when it is operating. Occasionally, too, the hefty 31.4 mph units fill in as shot rock haulers when one of the rock hauling trucks is down for repairs.

a Model 175A with 2¾ yd bucket. Three years, and over 10,000 meter hours later, it was traded for a larger Model 275A. Then expanding operations, combined with Michigan's excellent performance, caused the addition of four more Model 275A Michigans and one Model 75A to bring the fleet up to present strength.

Typical of the performance turned in by the Michigans today is an hourmeter reading taken at random from one Model 275A. In 17 months of operation, it showed 4,915 hours—an average of 66.4 hours worked each week since purchase.

Co-owners Jim, Dan and John McDonough are completely satisfied with their Michigan units. "Michigan Tractor Shovels have proven highly successful in our quarry operations," reports Jim Mc-Donough, "And we like the dealer service organization (Waukesha Sales & Service, Inc., San Antonio, Texas) behind them."

Demonstrate? Glad to!

Your Michigan Distributor will be glad to demonstrate a Michigan Tractor Shovel on your job at no obligation. Call him and select the size that best fits your operations... nine models... with lift capacities from 3,000 to 29,000 lbs.

Michigan is a registered trademark of CLARK EQUIPMENT COMPANY Construction Machinery Division



2403 Pipostono Road Bonton Harbor 2, Michigan In Canada: Canadian Clark, Ltd.



When his fleet of <u>four</u> crawler dozers failed to maintain production behind <u>eight</u> draglines, this prominent sewer contractor <u>tried</u> a <u>rubber-tired</u> <u>unit</u>. Today:

One Michigan does

The one Michigan Model 280 Tractor Dozer you see here is, by itself, handling all backfilling behind eight sewerdigging draglines. It has released four crawler dozers for other work, eliminated the need for a lowboy truck, and sidelined a compactor formerly used on the trenchfill.

The job is a \$2,000,000 network of sewer and water lines for the City of Bloomington, Minnesota. The contractor: Lametti & Sons, Inc., St. Paul.

"When we first tried the Michigan" recalls Bob Larson, veteran superintendent for Lametti, "both we and our Michigan distributor, Road Machinery & Supplies Co., Minneapolis, expected the 262 hp machine to produce only

about as much as one of our 235 hp crawlers. But, particularly because the Michigan is so much faster on the return portion of each dozing cycle, it has outproduced two of them. And with its ability to travel quickly under its own power between locations it has had no trouble keeping all backfilling cleaned up behind eight draglines!"

Travels 35 miles daily between jobs

Because of the wide area over which the draglines work—about four miles square—the 28 mph Michigan travels up to 35 miles daily between job locations... spends an average 20 minutes at each site dozing the 2700 lb-yd sand material up to 200 ft.

To do this job originally, two crawlers—both 235 hp—had to be lowboy-transported from location to location, and two smaller crawlers—70 and 100 hp—had to be kept at one station each. The big trouble was that the lowboy never seemed to be in the right spot at the right time. The big crawlers spent half their time waiting. The Michigan, of course, doesn't have to wait for transportation, and it has kept production high continually.

Gets 100% compaction on normal dozing passes

There have been other benefits too! One is compaction. In just normal dozing

Where sand has to be dozed 200 ft into trenches, Michigan's fast push and fast return enable it to outproduce two similar-sized crawlers.





Low-pressure tires and excellent maneuverability keep lawn damage to a minimum.

In this abrasive sand, Lametti estimates tires will outlast tracks, six to onel

A big advantage of Michigan over crawlers is its ability to make fast self-powered moves between trenching locations.





work of 6 machines

operation, the 57,770 lb Tractor Dozer has compacted the fill to original density.

"When we used crawlers to backfill, we either had to load out about 10% of the material or use a vibratory compactor," Mr. Larson points out. "And with the compactor we were always worrying about a broken sewer line... something we don't fear from the Michigan's big (29.5-25) tires."

The speedy Michigan has also proved handy for such odd jobs as moving manhole covers . . . pulling our stuck draglines . . . and by chaining backhoe and bucket attachments to its blade, providing the transportation services formerly done by truck and lowboy.

Still more tasks are soon to be added

to the busy Michigan's schedule... among them, scarifying asphalt streets to make digging easier for draglines, and with an angle-blade side-casting fill over water line trenches.

Residents like quick work, contractors like 100% availability

"Michigan ability to keep backfilling cleaned up puts us in good with the local residents," adds Mr. Larson. "It works so fast we're in and out in one day and no driveways are blocked at night. Also, compaction by the Michigan makes it easy for traffic to move over the trenchfill even in rainy weather. Then too, in these narrow streets we

Circle 141 on Reader Service Card

occasionally have to drive on someone's lawn and we find the Michigan's tires don't tear them up as do crawlers."

He continues, "Another reason we're pleased with the Michigan is excellent availability it's given us from the beginning. It's a great machine for our kind of work; we sure wouldn't like to be without it!"

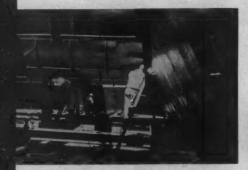
Michigan is a registered trademark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division



2403 Pipesione Road Boulon Harbor 14, Michigan in Canadu: Canadian Clark, Ltd.

Steel At Mid-Stream



Welders join prefabricated caisson sections that are lifted into place by a Manitowoc 3900 crawler crane. The 25-ft-high steel caisson is 42 ft wide and 117 ft long. It is assembled on barges so it can be floated to the pier location in midstream.



Steel and Concrete Caissons

Water piers for a bridge across
the Red River in Louisiana
are built on two different
types of open caissons. One
near river bank is concrete with
a steel shoe. It was built on
a sand island. The other caisson,
made of steel, was floated
into place at midstream.
Both caissons were excavated
and concreted at the same time.

TREACHEROUS CURRENTS and frequent high water forced a contractor to utilize open caissons instead of cofferdams in the construction of two water piers for a bridge across the Red River at Alexandria, La.

One water pier is near midstream. To guard against the river's fast rises, this pier was constructed by using a floating steel caisson that was unaffected by changes in the water level during the initial work.

The other pier is near a river bank. It was constructed by building a sand island surrounded by sheet piling and by forming the caisson cutting edge on the ground within the piling.

Land piers on both banks are built on footings supported on steel piles. Two concrete columns on separate footings make up each land pier.

The bridge consists of two 360-ft trussed arch approach spans and a 300-ft vertical lift span in the center. When completed, it will carry a four-lane expressway between Alexandria and Pineville.

The heavy division of Blount Brothers Construction Co., Montgomery, Ala., is the general contractor for both the \$1.4-million substructure and the \$2.3-million superstructure.

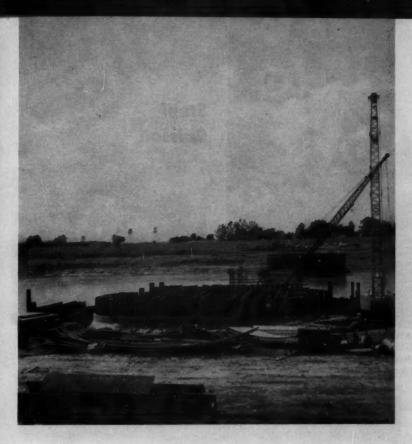
Barges Carry Floating Caisson

The floating steel caisson for Pier 2, located in midstream, is 25 ft high, 42 ft wide, and 117 ft long. It was fabricated by Flynn Mfg. Co. of Alexandria.

Because the caisson was too big to be picked up as a unit, it could not be assembled on shore and then lifted into the water. So Flynn assembled it on Blount Brothers' barges that were sunk from under the caisson when it was in position in the middle of the river.

Three clusters of guide piles, or dolphins, on each side of the pier location helped position the caisson. The dolphins served as moorings for the barges and the caisson, and they supported work platforms.

Each dolphin consisted of five timber piles that were driven with a 2,000-lb drop hammer.



Concrete On Sand Island



Carpenters assemble forms for concrete caisson on the sand island. Forms for the cutting edge and the outside of the caisson are made of wood; forms for the dredging wells are made of steel plate and are hinged at the corners for easy stripping.

Support Piers for Lift Span

A 65-ton Manitowoc crane with a 100-ft boom handled the pile driving from a barge.

The pile clusters were held together by horizontal bolted timber ties, and the dolphins along each side of the pier were tied together by timber poles.

In addition to work platforms, each dolphin was equipped with a Beebe hoist and a three-ton concrete anchor, or counterweight. The counterweights kept the caisson from dropping to the bottom too rapidly during the sinking and caisson positioning.

The barges are 4 ft deep, and the caisson drew 8 ft of water when floating. Normal depth of water in the river is about 14 ft which was more than enough for the barge sinking. If the water level dropped too low, the counterweights could be used to raise the caisson so the barges could be removed.

Next came the task of spotting the caisson in its exact location. This was done by driving steel H-piles flush against its sides and by making small lateral adjustments with wooden wedges. Timber braces were attached to the dolphins to back up the H-piles. The wedges were held in place by steel brackets welded to the pile flanges. The brackets allowed the wedges to slide up and down but kept them from moving sideways.

When the caisson was in position, concrete was poured into the 4-ft-thick walls, and the caisson was sunk in normal fashion.

Piles Hold Sheeting in Place

Pier 3, located near the river bank, was constructed on a 60x 140-ft sand island. Sheet piling made by U. S. Steel was driven along three sides of the island. The side facing the river bank was left open for access.

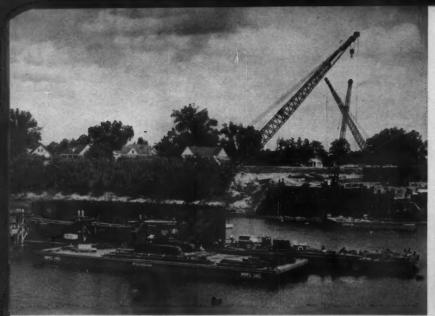
To anchor the sheeting, Blount Brothers drove a cluster of four 14-in. timber piles at each end of the sheet pile wall and tied cables to the piles after looping them around the sheeting. In addition, a 14-in. H-beam strongback was added to the sheet piling on the stream side. The cable was clipped to the outside flange of the strongback.

The caisson cutting edge for Pier 3 was constructed on the sand island. This caisson was made of concrete except for a steel shoe under the cutting edge. Forms for the cutting edge were made of wood.

Blount Brothers sank the caissons for Piers 2 and 3 at the same time, switching concreting and excavating operations back and forth between the piers.

At first, only one set of forms was used, but about halfway through the caisson sinking unexpected high water on the river wrecked the work schedule. Forms for a pour on Pier 2 in mid-river were in place and ready for concrete when high water flooded the caisson and damaged the formwork. To avoid delays, Blount Brothers built a second set of forms so that they could concrete both caissons at the same time.

Both sets of forms were 15 ft high, and concrete was poured in 14-ft lifts. Each caisson is divided into twelve compartments, or dredging wells. Eight of these are square and measure 15 ft on



FLOATING—Steel caisson is guided into position between timber piles driven along both sides of the pier location in midstream. The river is about 14 ft deep, and the floating caisson draws 8 ft of water.

Steel Caisson



ANCHORING—Clusters of timber piles, or dolphins, serve as moorings for the floating caisson and barges and support work platforms and hand-operated winches.



POSITIONING—H-piles and wooden wedges position the floating caisson in its exact location. Bracing attached to the dolphins holds the piles in place.

CONCRETING—Steel caisson settles to the bottom of the river as two Manitowoc 3900 cranes on barges pour concrete into the 4-ft-thick walls of the caisson.

CAISSONS SUPPORT PIERS . . . continued

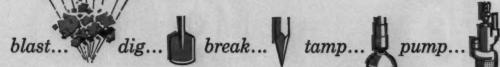
a side; two wells on each end are quarter circles. All walls between compartments and along the outside of the caissons are 4 ft thick.

When the original set of forms was used, the outside walls were shaped with wood panels and the dredging wells were formed with steel plates hinged at all four corners. When concreting began it turned out that hinges in only



Whatever you do...











E ROI AIR EQUIPMENT!

Whether you dig ditches, construct turnpikes, or carve tunnels through solid rock, remember this about Le Roi air equipment: You never have to take the next best in size or quality for your job!

Take air compressors. Nobody else offers a wider choice. Le Roi sizes range from 75 to 1200 cfm - tops in the field. Rugged Le Roi rotaries, for example, deliver rated capacity effortlessly for as long as you need it. Their light, balanced design eases on-site positioning and assures full power for greater man-tool output.

Some things you can get only from Le Roi . . . like the Le Roi 1200 rotary, the world's largest. Its twin engine and 600-cfm compressor units can be used separately - or as one unit to supply 1200-cfm air for the big jobs. The Le Roi Tractair® is a self-propelled air source (42-hp

tractor - 125-cfm compressor) that goes anywhere under its own power, with provisions for a dozen useful attachments.

Le Roi shock-absorbing breakers and sinkers boost operator comfort and output with 55% less kick at the handle, but with full 100% bite at the bit.

You have a wide choice of breakers, sinkers, drills, spades, tampers, drivers and other Newmatic® hand-held air tools for light, medium, or heavy duty. For big jobs, there's a broad selection of portable tools and self-propelled percussive and rotary rigs designed for easy operation.

Whatever you do, standardize on Le Roi air equipment. For more information, contact your Le Roi Distributor, or write direct.



ROTARY DRILLING RIGS

TRAC-NEWMATIC

Division of Westinghouse Air Brake Co. Sidney, Ohio

This General Electric lamp is being vibrated violently, but the ceramic shock absorber holds the filaments steady as a rock!

Enlarged Unretouched Photo



Even though this new General Electric lamp is being vibrated hundreds of times per second, the filaments don't budge a hair. That's why this G-E construction machinery lamp can last up to three times as long as the old style sealed beam lamps you're now using. The new ceramic

shock absorber keeps practically all road shock and engine vibration from the filaments.

Yet these new General Electric lamps cost no more than the old style sealed beam lamps. Why not try some now. Ask your lamp supplier for the new G-E construction machinery lamps with the ceramic shock absorber . . . the lamps that last longer but cost no more. These are the headlamps: #4480 (12 volt) and #4880 (24 volt) and floodlamps: #4478 (12 volt) and #4578 (24 volt). General Electric Co., Miniature Lamp Dept. M-122, Nela Park, Cleveland 12, Ohio.

Progress Is Our Most Important Product

GENERAL (%) ELECTRIC



← Circle 145 on Reader Service Card

Circle 146 on Reader Service Card

CONSTRUCTION METHODS



FORMING-Lima crawler crane on the river bank places wood forms for the dredging wells in the pier. Dredging well forms for the other pier are made of steel plate.

CONCRETING-Cranes pour concrete into hoppers around the caisson walls. The hoppers are equipped with 12-in.-dia downspouts that come in 4-ft-long sections.



CAISSONS SUPPORT

PIERS . . . continued

two diagonally opposite corners were needed for stripping. During this operation a crane hooked onto the forms; then the hinge pins in two corners were pulled and the crane removed all four panels for one dredging well in

a single operation.

The entire second set of forms was made of wood. Panels were 15 ft high for the dredging wells and 25 ft high for the outside of the caissons. All wood forms consist of %-in. plywood over 2x6 studs placed on 12-in. centers and backed up with double 2x8 wales.

Two Cranes Place Concrete

Ready-mix concrete for the piers was supplied by Central Culvert Corp. of Alexandria. The company set up a plant near the river and hauled concrete to the job in truck mixers.

To reach Pier 2, a floating trestle was built on the barges that had supported the steel caisson. The 240-ft-long trestle was connected to land by a ramp that was free to move up and down with the water level.

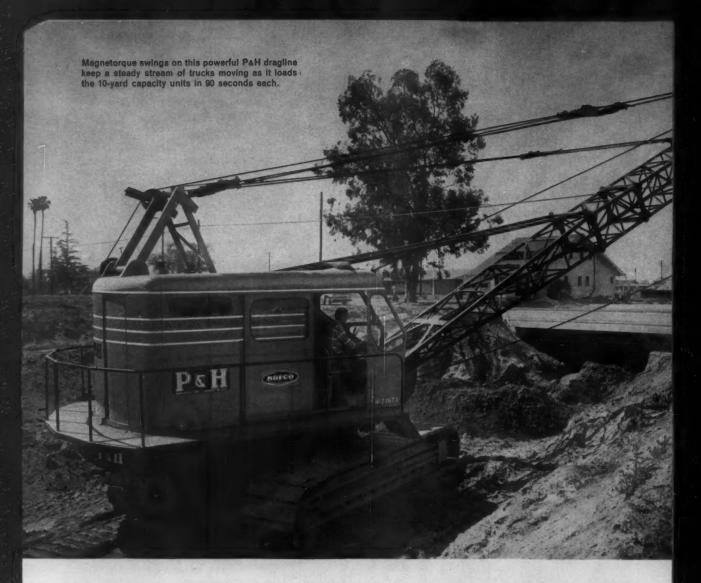
Two Manitowoc 3900 cranes with 120-ft booms placed the concrete. Blount Brothers tried to use a 3-yd bucket, but it was too big: they switched to a 1-vd bucket whose capacity had been increased to 2-yd by adding extensions to the sides. A 2-yd clamshell bucket handled exca-

Contractor-Built Hoppers

At first, elephant trunks distributed the concrete, but this did not work well because reinforcing steel in the walls made it hard to move them from place to place. The walls are reinforced with No. 11 bars on 9-in. centers horizontally and vertically. In addition, the walls contain 8-in.-dia void forms. These were used for jetting to dislodge obstructions under the cutting edge.

After giving up on the elephant trucks, Blount Brothers built small hoppers with 12-in.-dia downspouts that could be broken down into 4-ft-long sections. The hoppers were placed around the caisson walls, and the downspout

continued on page 150



"Magnetorque swings give us 20% more

NORCO CONSTRUCTION COMPANY, Artesia, Cal.—

North H. Plunkett,

Norco's President, reports-

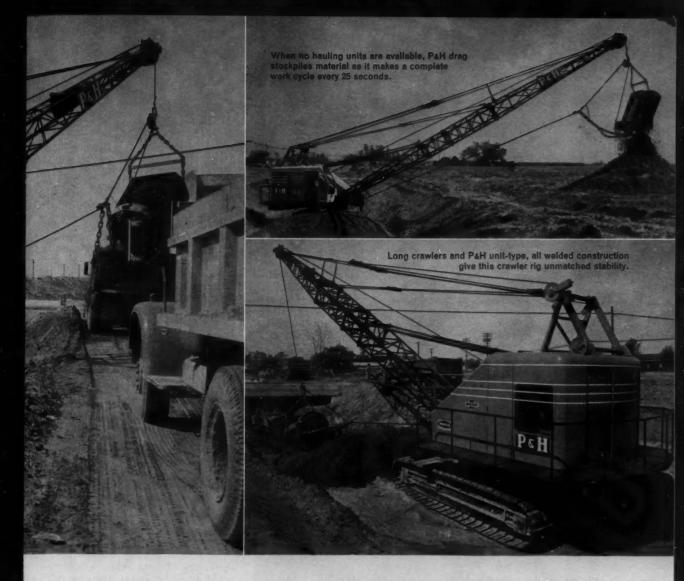
"Excavating is the key to profit or loss on this 2½ mile flood control channel job. After a detailed analysis of competitive units, we selected the P&H Model 655B dragline with long crawlers—primarily because of Magnetorque swings. The results are excellent—we are getting 20% better production than anticipated and the job so far is 30% ahead of schedule."

Norco Construction Co., is rushing a 2½ mile channel for Orange County Flood Control District. The job involves 400,000 yards of excavation—for the channel, a settling basin and a retention basin, to protect the billions of dollars invested in residential and commercial property as well as famous Disneyland and Knotts Berry Farm.

Norco's big P&H works from the center of the 50-foot wide excavation, swinging a 2½ yard bucket on its 60 foot boom to load 10 yard trucks on the embankment alongside. Material is wet sand and sticky clay which loads out at better than 3 yards per pass... filling the 10 yard trucks in only three passes.

Contractor Rigs Machine to Match Job Conditions

"With this type of job," Mr. Plunkett reports, "we felt it would be to our advantage to use a short boom and a larger dragline bucket. We are able to run our trucks on top of the embankment, close to the excavation. The 60-foot boom and the precision control of our PaH enables us to take advantage of the close quarters. We are very much impressed with the machine's ability to handle a 2½-yard bucket and still have so much stability. This is even more



production...put us 30% ahead of schedule"

Contractor in Carbon Creek Flood Control Project, Anaheim, Cal.

remarkable when we discovered we were taking out more than 3 yards of material per pass."

Magnetorque Swings Are Key to Top Yardage

Frank McFall, operator, summed it up—"the Magnetorque swingers on this rig are 'head and shoulders' over friction clutches. They're fast . . . they're smoother when making my pass at the truck. And there is absolutely no jerking when I reverse the swing. I can make complete loading cycles in

less than 30 seconds. It's even faster when I'm just stock piling and not loading. Another thing I've noticed is that I'm not nearly as tired at the end of the day as I used to be operating other rigs."

For complete information on this operation, write for Case History Report 134.

HARNISCHFEGER

Milwaukee 46, Wisconsin



As you plan ahead, plan on Magnetorque ...

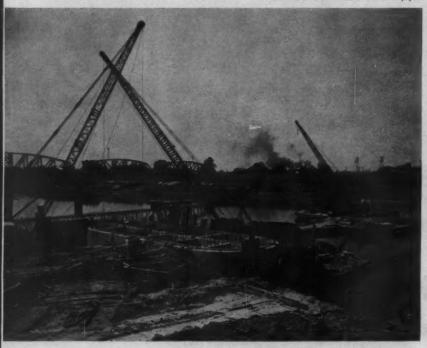
and choose the right machine for your work from 40 different models ...there's a P&H for every job! Write for "The Fabulous 40"

Circle 149 on Reader Service Card



FLOATING TRESTLE—Truck mixers travel on a 240-ft-long trestle to reach the pier in midstream. The trestle is built on barges and is unaffected by the water level.

CONCRETING PLATFORM — Blount poured tremie concrete from platforms equipped with a hopper and a five-ton hand hoist that lifted the tremie pipe.



CAISSONS SUPPORT PIERS . . . continued from page 147

sections were disconnected as the concrete level rose in the forms.

With this equipment, concreting averaged about 75 yd per hr and maximum production was 134 yd per hr. Pier 2 required 12,000 yd of concrete, and 11,000 yd were poured into Pier 3. The mix was designed for a strength of 3,000 psi.

When the caissons reached bottom, 93 ft below the water level, a 15-ft wet seal was placed in the dredging wells. Two movable 12-ft-high work platforms were built to simplify this operation. Each platform was equipped with a hopper, two five-ton Beebe hoists, and a 10-in-dia, 105-ft-long tremie pipe. The hoists raised the pipe as the level of the tremie concrete climbed in the caisson. The hoists allowed concreting to continue without interruption because cranes did not have to handle the tremie pipe.

When the wet seal in one dredging well was completed, a crane picked up a work platform

Concreting Both Piers

and moved the whole assembly into position on top of the next compartment. It took about 1,600 yd of concrete for the wet seal in each caisson. After the wet seal was placed, the dredging wells were pumped out with a Griffin Twin 6 jet pump and a 4x5 jet pump

Then the piers were built up to the required height with 3-ft-thick walls topped by a solid 5-ft cap. Before concreting the cap, a 10-in.-thick slab was poured in halves over each dredging well. The slabs were grouted in place and served as bottom forms for the pier cap. Total height of the piers is 105 ft.

Land Piers Rest on Piles

During periods of high water, operations were shut down on Piers 2 and 3, and Blount Brothers worked on the land piers. Two square concrete footings support each pier. The footings measure 23 ft on a side and are 6 ft thick. Each rests on 36 steel piles 65 ft long. A Lima 703 SE working with a No. 1 Vulcan hammer and a 600-cfm compressor handled the pile driving.

Atop each footing is a 12-ft-dia column. Blount Brothers used wood forms for the columns and tied them together with ¾-in. rods. The rods were made into hoops that are similar to those used on large barrels and wood water tanks.

Each hoop can be broken in half to avoid lifting it over the forms. The two halves are simply hooked together at one end, and a special bracket holds the other end. The bracket allows the hoops to be tightened with a wrench.

In charge of the work for Blount Brothers is H. Gerry Rodgers, superintendent. John Bullard handles supervision in the home office. Other personnel includes Buddy Cross, labor foreman; Bert Cleveland, carpenter foreman; and J. B. Williams, pile

driving foreman.

Project engineer for the State
Highway Dept, of Louisiana is
Francis Roberts; assistant project
engineer is Douglas McDougal.



Anesd

ONLY FROM EIMCO.

Eventually all tractors will be designed and built like this! But today, only Eimco offers modern design and construction



Shown here is an Eimco 103 Dozer with disc plow attachment, in side hill work. Low center of gravity, with engine placed in the center, independent track escillation and the extra strength and weight in the massive Eimco steel frame all assure outstanding stability even on extreme slopes and side hill work areas. Your Eimco will get you out as well as in, safely and surely.

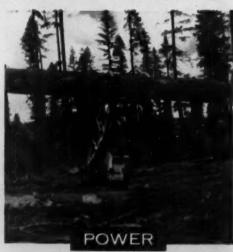


Only Eimco offers you the strength and rigidity of Unitized "Stress Flow" Construction. This underside view of the 100 HP Eimco 103 tractor shows the smooth flow of metal, with the extra strength where needed, without bolts or welds, that this advanced steel casting method makes possible. Eimco's are built strong . . . like a locomotive . . . to last longer with less maintenance! Eimco's are built with more strong alloy-steels, quality controlled in Eimco's own foundries, than any other tractor.



Eimce's exclusive up-front operator position, as shown in this shot of a 205 HP Eimco 106 Dozer, gives the operator unmatched visibility. He can easily see his work, see obstacles, stumps and obstructions, all without stretch, strain or "peeking." He sits in armchair comfort on a seat that is fully adjustable in every direction . . even for operator weight . . . with his blade, bucket or forks directly in front of him. He can work more easily with far greater efficiency, and far less fatigue, on an Eimco!

(Cover picture shows an Eimco 106 Hydraulid Bull-dozer building fire-breaks in the Clearwater Forest area in western Idaho. This machine is owned by Potlatch Forest Products, Inc.)



You get full working horsepower with every Eimco! The Eimco 146 Log Loader shown at work handles 25,000 lb. loads at ground. The Eimco 126 Front End Loader develops a maximum breakout force, with bucket heeled on ground, of 45,000 lbs.; lifting capacity of 25,000 lbs. at cutting edge, with a heaped bucket capacity of 3 cu. yds. The Bulldozers in the 106 series, featuring 205 HP diesel, develops a full 62,000 lbs. of Drawbar Pull, with sufficient weight and zero track slippage. With no clutch, you cannot stall an Eimco through the torque converter, under any load or condition!

for greater . . .

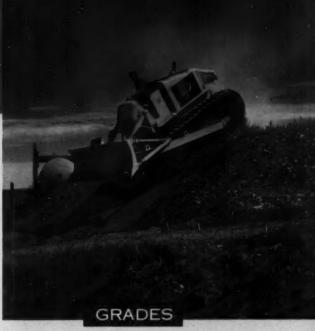
- strength
 - · maneuverability
 - · work-ability



Simplicity and comfort are at the heart of Einco's unique "Control Tower." Flip of the lever shifting from one speed to another; from forward to reverse and back again, at any engine or tractor speed and load! No clutch to work or require constant attention. Less operator fatigue means more work output and fewer moving parts means less maintenance and downtime!



The Eimco powerteam of single stage heavy duty terque converter with "Unidrive" transmission and Dual Final Drives permits true spin turns with the flip of two levers. Simply flip one forward, the other towards you, and your Eimco goes into a smooth, true spin turn, without track drag, in either direction, at any speed you select. Foot brake controls permit gradual brake turns as well, for the ultimate in maneuverability . . . with any series of Eimco tractors.



The 103 series, with a full seventeen inches of ground clearance, torque converter power and independent track controls, easily climbs up to 90% grades, either forward or reverse. Eimco tractors, in any series, give you exceptional maneuverability and hill climbing ability, due to Eimco's exclusive combination of power, control and workability features!



When the going's rough and there's no place for guesswork, you'll appreciate the instant response of the Eimco. Shown here is the famous Eimco 105 working at 8,600 foot altitude in the Sierra Buttes of California, on road pioneering. Eimco's famous "Unidrive" transmission combined with Dual Final Drives and full operator visibility assure safety and complete control, under all conditions, as your Eimco responds without dangerous lag, to every operating demand made upon it,

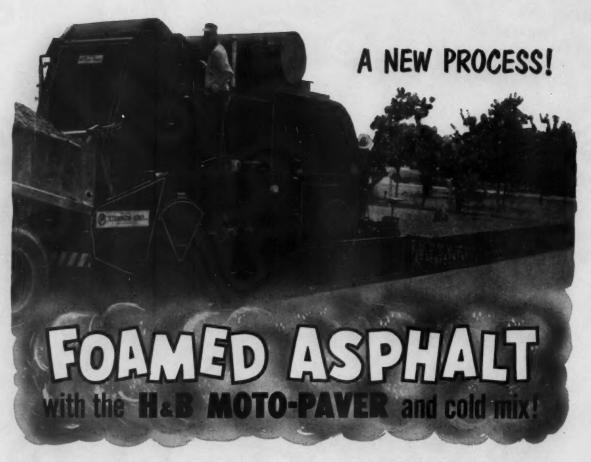
TRACTORS • DOZERS • EXCAVATORS • FRONT END LOADERS • LOG LOADERS

Get all the facts and specifications on the Eimco line — the 100 HP Diesel Eimco 103; the 143 HP Diesel Eimco 105; the 205 HP Diesel Eimco 106. Contact the Eimco Branch or Dealer near you, or write to The Eimco Corporation, Dept. 1, P. O. Box 300, Salt Lake City 10, Utah, U.S.A. "ADVANCED ENGINEERING AND QUALITY CRAFTEMANISHIP SINCE 1884"

THE EIMCO CORPORATION

EXPORT OFFICE: 51 - 52 SOUTH STREET, NEW YORK, H. Y. BEANCHES AND DEALESS IN PERICHAL CITIES THROUGHOUT THE WORLD





HERE'S HOW!



Asphalt, prior to being combined with aggregate, is reduced to a foam through the action of steam via a special jet-type nozzle. The foamed asphalt evenly distributes throughout the mix. As it is rolled, the foam dissipates and the asphalt reverts to its natural state. Benefits and advantages are many. For example . . .

NO WAITING FOR CURING

Compaction by rolling immediately after spreading.

ASK FOR DETAILS about this NEW OPTIONAL FEATURE ON MOTO-PAVER, H&B's combination Traveling Mixer and Paver.

MOBILE TYPE BATCH PLANTS in 6 sizes BASE STABILIZER PLANTS in 2 sizes MOTO-PAVER, the travelling combination Mixer and Paver (cold mix)

Cable Address: Panmakina ← Circle 153 on Reader Service Card

HETHERINGTON & BERNER

Engineers

Manufacturers

Circle 154 on Reader Service Card

LET'S KEEP

Business Help For Our Colleges Going Full Speed Ahead

"Should our company fold up its program of financial help for higher education now that the Kennedy Administration plans to have the federal government provide this kind of help in a big way?" It is clear why, in the light of campaign promises and plans announced since, this question is being raised in many business firms at this juncture.

What seems far clearer, however, is the right answer to the question. It is a resounding NO! This is no time for the business community to ease up in what have been its notably successful efforts to help our colleges and universities get out of the deep financial hole in which they are operating. On the contrary, this is the time to put more steam than ever behind the drive of business to increase its financial help for higher education.

Massive Help Needed

It is easy to understand why any individual businessman or firm might have a rather despairing feeling about the prospect of competing with the federal government, with its almost all-embracing tax arm, in providing financial support for higher education or almost anything else for that matter. But this is not a case of competition. It is a case where our colleges and universities must have massive help all along the line if they are to be put squarely back on their feet financially—a goal of crucial and perhaps decisive national importance. The business community will continue to have both the opportunity and the obligation to keep on increasing its help for higher education as rapidly as possible.

To underline this proposition take a look at the chart at the top of the next page. It shows how far the salaries of college and university faculty members continue to lag behind those of other occupational groups in the U.S.A. There has been some relative improvement in the average of faculty salaries in recent years. And the salary improvement in some fields, such as those of science and mathematics, has been very pronounced. But the chart makes clear how badly the average salary of college and university faculty members still lags.

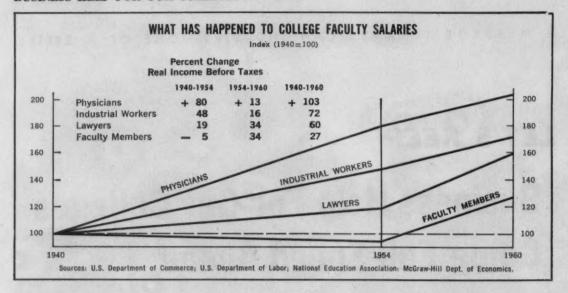
No Federal Funds For Salaries

The plans for increased financial aid for higher education, proposed by President Kennedy, do not contemplate increased expenditure for faculty salaries. This, we believe, is wise whether or not you feel, as many do, that resort to this kind of federal financing would inevitably carry with it federal controls that would ultimately undermine academic independence. The fight over federal appropriations for faculty salaries would be so long and bitter that it would be destructive to the aid program as a whole.

However, what the federal government will not be doing to remedy the deplorable condition of faculty salaries, as reported by the chart, is one indication of the tremendous scope that remains for crucially important help for higher education from business. Manifold other indications are available.

Disaster Escape Route

One of these indications is provided by the careful calculation that the annual income of our colleges and universities must be increased by about \$4½ billion (from about \$4½ billion to about \$9 billion) over the next eight years if the tremendous wave of students



now gathering to descend on these institutions is not to wind up in both a financial and an educational disaster. This wave promises to add more than 2.5 million, or 75%, to college enrollments by 1970.

Thus far, the program for financial help for higher education by business, spearheaded by the Council for Financial Aid to Education, has been a remarkable success in all dimensions. The dollars contributed have increased rapidly—from about \$100 million five years ago to about \$150 million this year. Contributions of \$500 million a year by 1970 are a clear possibility.

One of the inspiring developments increasing this possibility stems out of Cleveland, Ohio. There through their chief executives, an imposing group of business firms have established one per cent of their profits before taxes as their minimum goal for contributions to higher education, to be reached within three years. General acceptance of this goal by business would go most of the way toward getting our colleges and universities firmly on their feet financially.

Mutual Respect Increased

The mutual esteem of the academic community and the business community, an element of enormous importance to a free society, has been increased by the manner in which the program of financial aid has been carried out. In making its contribution, there has been no attempt whatsoever on the part of business to encroach upon the academic freedom of the institutions financially benefited. And the program of financial aid has greatly increased the knowledge, understanding and respect which the colleges and universities and business have for each other.

The Kennedy Administration's program to enlarge federal financial support of higher education is certain to arouse strenuous controversy. As proposed by its Task Force, it avoids some of the most controverial areas of principle. However, the very magnitude of the proposed extension of the federal government's already vast program of financing higher education involves fighting issues.

But if the enlargement of federal aid were to be deeply discouraging to the continued expansion of private aid for higher education, it would be a national misfortune of major proportions. There is no good reason why it should be. On the contrary, there is compelling reason for the business community to continue giving higher education all the financial help it possibly can, thus speeding onward a program that has been and continues to be a major constructive force for our colleges and universities, for business and for the nation.

This message was prepared by my staff associates as part of our company-wide effort to report on major new developments in American business and industry. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or part of the text.

Donald CMcGraw

McGRAW-HILL PUBLISHING COMPANY



WHITE 4200TS tractor — rugged WHITE quality at a new low cost.

WHITE 9064 tandem — most popular of all construction tandems.

WHITE 6264 mixer tandem—boosts payloads 3 tons in many states.

This is a place for special breeds of men and machines

No mass-produced truck can stand the twisting strain of the gouged terrain. No common truck can haul the loads... and live. Construction work takes a White. Custom-built with superstrong frame and heavy-duty components. Locked together with nuts and bolts. Each truck engineered specifically, bumper to tail light, for its own demanding job.

That's why WHITE tandems will haul two full yards more readymix. Why the new WHITE heavyduty tractor will outwork its competition on any construction

site despite its competitive price. And why any construction White will do more work, in less time, at lower cost, to give you a competitive edge in your business.

THE WHITE MOTOR COMPANY CLEVELAND 1, OHIO

Branches, distributors, dealers in all principal cities

WORLD LEADER IN HEAVY DUTY TRUCKS
WHITE TRUCKS
Circle 157 on Reader Service Card

Choose from a complete line of:

HOMELITE CARRYABLE EQUIPMENT

HOMELITE

2 CYCLE ENGINE DRIVEN CARRYABLE

PUMPS



| Size | Capacity | Wt. in lbs. | Model |
|-------|--|----------------|----------|
| 3312 | CENTRIFUGAL PUMPS | | |
| 11/2" | 5,500 g.p.h. | 45 | 20\$11/2 |
| 2" | 10,000 g.p.h. | 69 | 35\$2-1 |
| 2" | 10,000 g.p.h. (slow speed) | 69 | 35S2-1R |
| 3" | 18,000 g.p.h. (slow speed) | 103 | 8S3-1 |
| 3" | 18,000 g.p.h. | 103 | 8S3-1R |
| 3" | 102 g.p.m. at 60 p.s.i. 250 g.p.m. — open discharge | 103 | 8S3-1P |
| 3" | 5,000 g.p.h. | 120 | 20DP3 |

HOMELITE

2 CYCLE ENGINE DRIVEN CARRYABLE

GENERATORS



| Capacity (Watts) | Current | Wt. in lbs. | Model |
|---------------------|---|----------------|-----------|
| 1,500 | 115 volt, 60 cycle, AC | 90 | 35A115 |
| 3,000 | 115 volt, 60 cycle, AC | 140 | 8A115 |
| 3,000 | 115/230 volt, 60 cycle, AC | 141 | 8A115/230 |
| 3,000 | 230 voit, 180 cycle, 3-phase AC plus 110 voit DC | 143 | 8НҮ |

4 Cycle Engine Driven Pumps and Generators also available



HOMELITE

ONE-MAN

CONCRETE

| Head Dia. | Motor | Wt. (Complete) | Model |
|----------------------|--------------------------|--|--------------------------------|
| 2.3" | High-Cycle* | 47 lbs. | VH-LD |
| 21/2" | High-Cycle* | 41 lbs. | -VH-10 |
| 4" | High-Cycle* | 58 lbs. | VH-HD |
| 23/4" | 110 v. AC-DC | 42 | VU-MH |
| 11/16", 11/4", 11/6" | 110 v. AC-DC | 41 | MU-FS |
| | 2.3" 2½" 4" 2¾" | 2.3" High-Cycle* 2½" High-Cycle* 4" High-Cycle* 2¼" 110 v. AC-DC | Head Dia. Motor (Complete) |

HOMELITE CHAIN SAWS

QUICK SELECTOR GUIDE FOR EVERY CUTTING NEED



| Model | Wt. in Ibs. (Engine Only) | Type of Drive | Tree Sizes Model Will Cut (Dia.) | Straight Blade Bar Lengths |
|-------|------------------------------|---------------|-------------------------------------|-------------------------------|
| 500 | 19 | Direct | Up to 3' | 12" to 21" |
| 600D | 18 | Direct | Up to 4' | 12" to 30" |
| ZIP | 20 | Direct | Up to 3' | 12" to 21" |
| WIZ | 20 | Gear | Up to 5' | 14" to 28" |
| 700D | 19 | Direct | Up to 5' | 12" to 30" |
| 700G | 21 | Gear | Up to 7' | 15" to 60" |
| 900D | 23 | Direct | Up to 7' | 17" to 44" |
| 900G | 26 | Gear | Up to 10' | 18" to 60" |

ELECTRIC TOOLS



| Weight | Capacity (Drill Sizes) | Motor | Model |
|---------|---------------------------|----------------|---------|
| 13 lbs. | 34" to 134" | 115 volt AC-DC | BH-13-U |
| 21 lbs. | 1/2" to 21/4" | 115 volt AC-DC | BH-21-U |
| 20 lbs. | 1/2" to 23/6" | High-Cycle* | ВН-НС |

PAVING BREAKER

Does all jobs that a 55-60 lb. air hammer will do. High-cycle motor. Weight: 60 lbs.

ROCK DRILL

Drills holes up to $3^{\prime\prime}$ in diameter, up to 20^{\prime} deep. High-cycle motor. Weight: 55 lbs.

A complete line of accessories and tools are available from Homelite for the above builder's hammers, paving breakers, and rock drill.

*180 cycle, 230 volt, 3-phase AC power for high-cycle tools is supplied by carryable Homelite generator, Model 8HY.

HOMELITE

A DIVISION OF TEXTRON INC.

1005 RIVERDALE AVE., PORT CHESTER, NEW YORK

WRITE FOR FREE FULL LINE CATALOG

IN CANADA: TERRY MACHINERY CO., LTD.

HOMELITE

4-CYCLE ENGINE-DRIVEN

PUMPS AND GENERATORS



PUMPS

| Size | Capacity | Wt. | Model |
|------|----------|-----|------------|
| 11/2 | 7000 | 55 | 43511/2 |
| 2 | 9000 | 58 | 44S2 |
| 3 | 18000 | 95 | 45S3 |
| 3 | 4500 | 118 | 44DP3 |
| | | | (Diaphragm |



GENERATORS

| Watts | Current | WŁ. | Model |
|---------------------------|------------------|-----|------------|
| 1500 | 115 Volt AC | 104 | 46A115 |
| 3000 | 115 Volt AC | 170 | 41A115 |
| 3000 5000 | 115/230 Volts AC | 170 | 41A115/230 |
| (Int.) 4500 (Cont.) | 115/230 Volts AC | 250 | 42A115/230 |



Homelite Floodlights make night work easier and more efficient by flooding work area with brilliant lighting. Rugged cast-aluminum housings assure long service life. Quick release cable connectors make set up and break down easy - no tangled cables. Standard sealed-beam 300 or 500 watt floodlights or spotlights are used - no bulb replacement problems.

HOMELITE

A DIVISION OF TEXTRON INC. 1005 Riverdale Ave., Port Chester, New York In Canada: TERRY MACHINERY CO. LTD.

Circle 252 on Reader Service Card MAY. 1961

Sales and Service

Equipment purchasing and servicing takes less time when you know who and where to call. Keep advised of new distributors. sales personnel and other activities.

Distributor Appointments

Koehring Co.: Brown - Fogle Equipment, Houston, has been appointed distributor for southeastern Texas by the Koehring, C. S. Johnson, Parsons, and Buffalo-Springfield divisions. Southern Equipment & Tractor Co., Inc., with four Louisiana locations, has been appointed distributor for that state and parts of Arkansas by the same divisions. The Kwik Mix Co. has appointed Choctaw, Inc., Memphis, distributor for Arkansas and Mississippi and the western third of Tennessee: Malette Construction Equipment Co., Sault Ste. Marie, distributor for upper Michigan and the northern part of lower Michigan; and Anderson Equipment Co., Omaha, distributor for Nebraska and the western third of Iowa. The Parsons Co. has named Cowin Equipment Co., Inc., Birmingham, distributor for northwestern Florida and Alabama. The Buffalo-Springfield Co. has named Mountain Tractor Co., Missoula, distributor for western Montana.

Clark Equipment Co.: The territory for which Spreitzer, Inc., Cedar Rapids, is responsible for sales and service of the Michigan line has been expanded to include 41 counties in central Iowa. Spreitzer previously operated in western Iowa and central Illinois.

Hauck Mfg. Co.: Rocky Mountain Supply Co., Denver, has been named to distribute Hauck's line of portable roofing and mainte-nance equipment in Colorado and Wyoming, western Kansas, western Nebraska, and northern New Mexico.

Highway Equipment Co.: Martin Equipment Co., Dallas, is distributor for the Hi-Way line in parts of Texas.

Yale & Towne Mfg. Co.: J. C. Georg Construction Equipment, Inc., Schenectady, and Hudson



Keep "deadhead" dezer reverse from picking your pockets of project profits. BACK RIP! Get full-time dezer production . . . forward and reverse. Equip your tractors with PRECO Back

Rippers.
Back ripping prepares materials for easy scraper leading and dezing . . . heests production . . . on all jobs. Back ripping is the cheapest way to rip, because it puts the backup trip

to work.

PRECO Back Rippers give you the competitive advantage of two-way, doubly-effective production, eliminating wasted motion.

Available for all dozers, PRECO Back Rippers do not interfere with regular dozing, floating over the surface on the dozing pass and biting in to rip in reverse. Easily retractable, if required, they come complete with replaceable, lock-on teeth.

Get full-time dozer production . . . equip your tractors with PRECO Back Rippers now.

PRECO can increase grading profits, too, From ditching, sloping, rough-ing in, and spreading mater-ial, to finish grading; PRECO Automatic Blade Controls offer

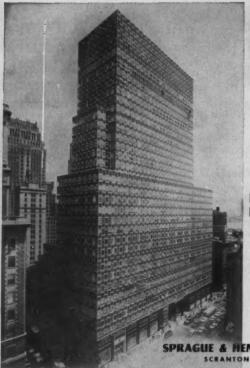


Controls of fer fast, easy, accurate performance on all applications. By holding cross slope to an accuracy of 1/10th of 1%, PRECO Automatic Blade Control lets the operator do all his grading from just one row of stakes—frees him to concentrate on his other skills. PRECO Automatic Blade Controls are available for Caterpillar and LeTourneau-Westinghouse Motor Graders. Ask for complete information today.

WRITE, PHONE, OR CABLE FOR ALL THE PRECO FACTS OR SEE YOUR PRECO DEALER



Circle 159 on Reader Service Card



ANOTHER
FOUNDATION
INVESTIGATION
PROJECT

NO. 2 BROADWAY NEW YORK

PRAGUE & HENWOOD, Inc. ST

FOUNDATION INVESTIGATION • MINERAL EXPLORATION PRESSURE GROUTING • MASONRY DIAMOND DRILLING

New York—Philadelphio—Nashville—Pittsburgh—Tucson—Grand Junction, Colo.—Bachans, Nfld.

Circle 160 on Reader Service Card



this is time...

save time with McGOWAN
PUMPS!

You can't afford to lose valuable construction time on dewatering jobs. McGowan Pumps are simple to operate, requiring no complicated adjustments or attention. One contractor says this about his McGowan, "I can set it up and start it myself without taking men off their work." Once started, it does the job quickly without bother and can be left to run unattended.



Special McGowan Seal

Exclusive Lüb-Vac seals maintain maximum pumping capacity and high lift, extend the working life of the pump. Keep your pump on the job instead of in the shop.

McGOWAN PUMPS
DIVISION OF LEYMAN MANUFACTURING CORP

10948 Kenwood Rd. • Cincinnati 42, Ohio Circle 253 on Reader Service Card 5M 5000 G.P.H. CAPACITY

LOOK FOR YOUR NEAREST DEALER IN THE YELLOW PAGES.

SALES AND SERVICE . . . continued

Valley Equipment Co., Saugerties, have been named Trojan distributors for sections in upstate New York. George Malvese & Co., Hicksville, present Long Island distributor, will also represent Trojan in New York City and Westchester County.

Huber-Warco Co.: Mingolla Machinery Co., Concord, has been appointed distributor in New Hampshire and Vermont.

Allis-Chalmers Mfg. Co., The Tractor Group has named Martin-Roasa Tractor & Equipment Co., Cedar Rapids, as engine dealer in parts of Iowa and Missouri. Ohio State Equipment, Inc., Columbus, has been appointed engine dealer in 38 Ohio counties.

Jones & Laughlin Steel Corp.: The Wire Rope Div. has named Gate City Steel Co., Omaha, distributor in Iowa, Nebraska, North and South Dakota, Montana, Kansas, and Colorado.

Harnischfeger Corp.: Copper State Tractor, Inc., Phoenix, has been appointed P&H equipment dealer in Arizona.

On the Sales Front

Erie Strayer Co.: William J. Jenkins has been named sales manager of the Bucket Div.

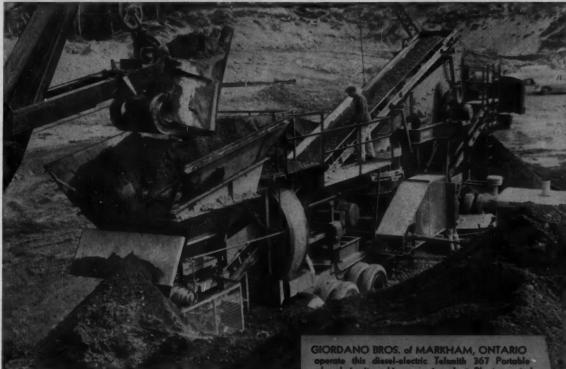
Owatonna Tool Co.: The tools and Equipment Div. has named S. L. Richmond sales manager and Gordon F. Packer sales representative for southern California and Arizona.

American-Marietta Co.: The Master Builders Div. has appointed Mark R. Woodward field sales manager of the east central division; John P. Draney as sales engineer in the Chicago office; and William T. Kennedy as manager in Fort Lauderdale.

Superior Scaffold Co.: Jerry Terrell has been named sales representative and field engineer for the northern California area.

Worthington Corp: The Construction Equipment Div. has appointed Frederick J. Reardon eastern sales manager with headquarters at Harrison, N.J.; Gilroy central

CUT COSTS LESS DOWN TIME AND UP-KEEP



...get HIGH CAPACITY crushing and PRODUCT FLEXIBILITY

Crushing over 215,000 tons of granular road building material in two years, this Telsmith Portable closed circuit crushing-screening plant has had practically no down time; its single 367-S Gyrasphere Crusher still has its original manganese steel liners. Plant capacity is high—up to 300 tph. • Its 367 Gyrasphere has a big ratio of reduction-7" feed down to %", with little oversize. • The big 4-bearing, 4' x 12', 21/2 deck Vibrating Screen can make 3 product sizes in one pass. Sizes may be blended by simple adjustment of under screen gates. • Crusher; Screen; 30" conveyors, adjustable stroke Plate Feeder; Feed Hopper with removable grizzly; non-slip 84" x 24" Rotary Elevator—all Telsmith heavy duty units, the same as used in permanent plants to insure the low cost, profitable service today's commercial producers demand. For full details, get illustrated Bulletin 276.





ENGINEERING WORKS

E. CAPITOL DRIVE, MILWAUKEE 1, WISCONSIN

Cable Address: Sengworks, Milwaukee * Representatives in Principal Cities in all Parts of the World

Circle 161 on Reader Service Card

Service is important to these Kohler engine users



CONSTRUCTION



These men know Kohler engine service





INDUSTRY



AGRICULTURE AND GARDENING

KOHLER ENGINE SERVICE is skilled, nation-wide.

It's handled by specialists to save down-time costs.

They learn their job at the Kohler Service Training School, located in the huge new engine and electric plant building at Kohler, Wisconsin and are thoroughly instructed in every aspect of engine service, application and maintenance.

Authorized distributors and dealers stock and are ready to install any Kohler engine parts you need.

Write Dept. M-18 for information about Kohler Engines

KOHLER Co. Established 1873 KOHLER, WIS.

KOHLER OF KOHLER

ENAMELED IRON AND VITREOUS CHINA PLUMBING FIXTURES • ALL-BRASS FITTINGS ELECTRIC PLANTS • AIR-COOLED ENGINES • PRECISION CONTROLS

Circle 162 on Reader Service Card

SALES AND SERVICE ...

continued

sales manager with headquarters at Chicago: Richard J. Spezzano sales manager of the southern zone with headquarters at Atalanta; and Charles W. Croney western sales manager with headquarters at San Francisco.

Yale & Towne Mfg. Co.: Robert G. Allan, Jr. and Thomas R. Westrope have been appointed district sales representatives for the Trojan Div. Allan will direct sales of Trojan equipment in Kentucky, Michigan, Ohio, West Virginia, and part of Pennsylvania. Westrope will direct operations in Illinois, Indiana, Iowa, Minnesota, Nebraska, eastern Missouri, North and South Dakota, Wisconsin, and the province of Manitoba.

Bell & Gossett Co.: The Marlow Pumps Div. has appointed C. A. Burt sales representative for Maryland, Delaware, and parts of Pennsylvania.

Lincoln Electric Co.: A. F. Boucher has been named general sales manager.

Hauck Mfg. Co.: Oliver Diamond has been appointed assistant sales manager of the Equipment Div.

Flygt Corp: Joseph Albiez has been named sales manager.

Shunk Mfg. Co.: W. L. Landis has been named sales manager for West Virginia, Maryland, Del-aware, Virginia, Kentucky, Ten-nessee, North Carolina, South Carolina, and Georgia. James A. Piper has been named sales manager for Pennsylvania, New York, New Jersey, Massachusetts, Connecticut, Rhode Island, Vermont, New Hampshire, and Maine.

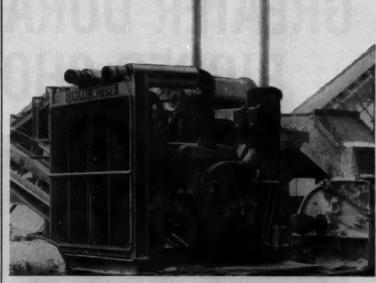
Oliver Corp.: E. V. Davis has been named industrial sales manager for the Harrisburg branch.

Galion Iron Works & Mfg. Co.: Robert G. Shupp has been named district representative for Galion rollers and graders in the north central states. Ron Clayton has been named Pacific Northwest district representative.

T. L. Smith Co.: Robert G. Kuhnmuench has been appointed manager of the Western Div., covering 13 states with headquarters in Los Angeles.

Crusher dust gets so thick you can't breathe ... but

Donaclones deliver 99.9% pure air!





Dust gets so thick around this ag limestone plant, it often hides the equipment. Diesel engines on crusher and hammermill used to require frequent overhaul with expensive downtime.

After Donaclones were installed, engines were operated according to the previous overhaul schedule and then examined. They showed prac-

tically no signs of wear.

The Donaclone's primary centrifugal cleaner removes 98% of the dust. Only 2% remains for the Duralife paper filter giving it an extra-long service life. And it can be renewed when necessary, by dunking in water and detergent.

Add years of engine life by mod-ernizing with Donaclones.

Write for name of dealer



Circle 163 on Reader Service Card

61 FORD TAXES TRUCKS BROADER WARRANTIES... GREATER DURABILITY... BIGGER CHOICE!



FORD HAS WARRANTED TO ITS DEALERS, WHO IN TURN WARRANT TO YOU:

New Super Duty V-8 Engines for 100,000 miles or 24 months!

New Ford Trucks for 12,000 miles or 12 months!

Ford's rigid quality control program gives you unsurpassed dependability! Positive evidence of uniformly high production and inspection standards is the exclusive new 100,000-mile engine warranty. On 401-, 477- and 534-cu. in. Super Duty V-8 engines, each major engine part (including block, heads, crankshaft, valves, pistons, rings), when engine is used in normal service, is warranted by your dealer against defects in material or workmanship for 100,000 miles or 24 months, whichever comes first. Warranty covers the full cost of replacement parts... full labor costs for the first year or

50,000 miles, sliding percentage scale thereafter.

In addition, an extended warranty covers all 1961 Ford Trucks of any size. Each part, except tires and tubes, is now warranted by your dealer against defects in material or workmanship for 12 months or 12,000 miles, whichever comes first. The warranty does not apply, of course, to normal maintenance service or to the replacement as normal maintenance of such items as filters, spark plugs and ignition points. No other trucks give you such protection for your investment; never before could you be so confident of long-range durability!



Tougher tandems offer greater strength in chassis, cab and sheet metal for longer life. Full-Torque flywheel power take-off is available for more efficient drive of transit mixers and heavy-duty equipment.



Timken or Eaton rear axles, with capacities up to 38,000 lb., are available in all Super Duty tandems. High capacity front axles have wider track for increased stability when cornering or in rough terrain.



GVW's up to 51,000 pounds permit big, profitable payloads. Heavier gauge metal and stress-isolating Independent mounting for radiator, fenders and cab give you greater durability.



Tandem Axle models are available with tilt cabs. As with conventional tandems, aluminum walking beams, wheels and fuel tanks are offered to cut weight . . . increase payload capacity.

QUALITY-BUILT...
MAINTENANCEENGINEERED

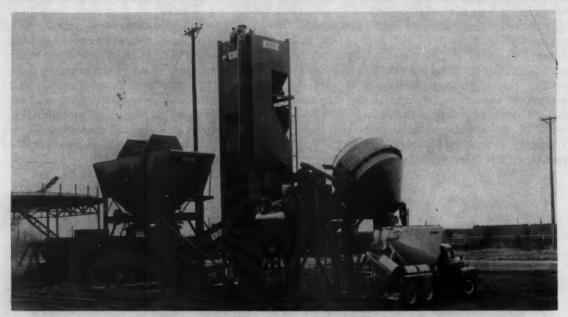
FOR

FORD TRUCKS COST LESS

Circle 165 on Reader Service Card

Construction Equipment News

For more information on max from, each the key number bound of the end of each from, on the RL IDER SERVICE CARD post mode the lands over



Central-Mix Plant Travels Easily

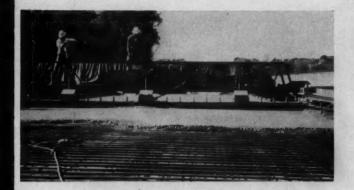
This fully mobile central-mix plant mounts on its own running gear and can be towed to job locations by truck tractors. Rated at a maximum capacity of 215 yd an hr, the plant can be dismantled at one location, moved to another and put back into operation within two 8-hr days. The plant consists of three basic units: aggregate batcher, cement batcher, and the mixer. A 100-yd bin hopper and a batching section with a 48-in. belt conveyor make up the aggregate unit. The cement unit is comprised of a 425-bbl bin and a 600-bbl ground storage silo. The mixer is on a tilt mechanism developed by Glenway Maxon and has 6.2-yd capacity. All of the plant's units have maximum road height of 131/2 ft, and the maximum width is 11 ft.—Erie Strayer Co., Geist Rd., Erie, Pa. Circle 301 on Reader Service Card

Crane Operates in Tight Quarters

Designed for use where space is at a minimum, the RD-120 all-electric crane can lift a 50-ton load at a 25-ft radius. The low space requirement feature is the result of single column mounting and short tail swing. The RD-120 is full-revolving and weighs 60,000 lb with its standard 80-ft boom. A 100-ft boom is also available. LeTourneau generators directly coupled to a 275-hp diesel engine supply operating power for ac-powered hoisting and luffing and dc-powered swing. The crane can also be operated with commercial or other existing power sources. Each crane function is direct driven by an individual, high-torque electric gearmotor that keeps power on the load at all times.—R. G. LeTourneau, 2399 S. MacArthur, Longview, Tex.

Circle 302 on Reader Service Card





Concrete Finisher Extends to 55 Ft

This adjustable finishing machine for paving bridge decks can handle widths from 20 to 55 ft. Bolt-on truss-type 5-ft extensions can be added to the 20-ft main section. The unit is available with either a single or double screed and with an adjustable drag pan or float. The screed can be adjusted for any shape crown and down to 14 in. below wheel height. Within a few hours, the finisher can be converted for use on highways and streets.—Cleveland Formgrader Co., 34250 Mills Rd., Avon, Ohio.

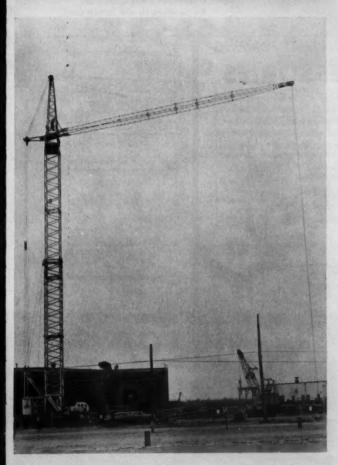
Circle 303 on Reader Service Card



Earth Drill Eliminates Trenching

Set up and operated by one man, this horizontal earth drill can make 2 to 12-in.-dia holes up to 200 ft under streets and highways. The drill uses 5-ft sections of 1-in. pipe for stems. The bit and stems are kept free in the hole by water pressure that flows loosened earth back along the outside of the stems to the hole entrance. A CMC ¾-in., 36-lb pressure pump is available for use with the drill. Powered by a Briggs and Stratton 6-hp gasoline engine, the earth drill can make a 2-in.-dia, 5-ft-long hole in 30 sec in ordinary soil. — Construction Machinery Co., Waterloo, Iowa.

Circle 304 on Reader Service Card



GURRIES MAG PER TO

Spreader-Grader Irons Out Roadbed

A new model of the Gurries Automatic Road Builder (CM&E, Aug. '59, p. 202) incorporates a 20-in.-dia power-driven screw that casts excess material while grading and balances bowl load for uniform strike-off while spreading. A hydraulic system on the GARB-44 automatically maintains blade height and cross slope in relation to a selected reference.—Gurries Mfg. Co., San Jose, Calif.

Circle 305 on Reader Service Card

Tower, Climbing Cranes Added to Line

Harnischfeger will import and market a line of fully-revolving tower and climbing cranes under an agreement with Liebherr Ltd., a West German firm with manufacturing facilities in Ireland. The electric-driven cranes can be operated from a cab or by remote control from anywhere on the site. Heights for the tower cranes range from about 50 to 350 ft. Lifting capacities of the tower and climbing cranes range from 4 to 25 tons.—Harnischfeger Corp., 4445 W. National Ave., Milwaukee 46, Wis.

Circle 306 on Reader Service Card

EQUIPMENT NEWS ...

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



Ripper Fits Cat Tractors

Designed for mounting on Cat D4, Series C tractors, ATECO's HR-D4W ripper has a tool beam that handles up to five shanks with standard ripping depth of 14 in. Features include the high-lift tool beam for ripping the bank as well as the floor and pitch and depth adjustments for supplying the shank points with correct digging

angle at depths less than maximum.—American Tractor Equipment Corp., 9131 San Leandro Blvd., Oakland, Calif.

Circle 307 on Reader Service Card

Converter Provides 110 ac From 12-v Storage Battery

Fully transistorized to reduce its weight, the Activerter provides 110-v ac power any place a 12-v battery is available or can be taken. It will operate lights, electric tools, and appliances. Four models with capacities from 150 w to 500 w are available. The



model shown is the 500-w Pak-O-Power portable unit with selfcontained 12-v battery. — The Electric Storage Battery Co., Dept. G, P.O. Box 6266, Cleveland 1, O.

Circle 308 on Reader Service Card



Hydraulic Trencher Digs Vertically

The Trenchit, a hydraulically controlled utility trencher with a vertical boom, can work flush to walls, curbs, and sidewalks. Digging widths range from 4 to 12 in. Hitched to a vehicle, the Trenchit can be towed on highways without a trailer. For shorter distances on the job site, the self-propelled machine moves at speeds up to 2½ mph.—Century Engineering Co., Waukesha, Wis.

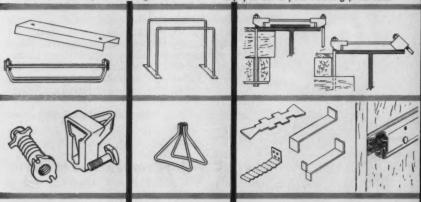
Circle 309 on Reader Service Card

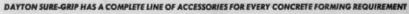
PUT SAFETY, SPEED, ECONOMY INTO CONCRETE FORMING

..... use SURE-GRIP ACCESSORIES

From one source . . . every accessory you need for accurate, safe and dependable concrete forming. They're made to save time . . . reduce your forming costs.

Your requirements will be filled expediently by a Dayton Sure-Grip distributor near you. As one of hundreds of Sure-Grip distributors, he's experienced, reliable—always ready to help you solve your forming problems.





Our detailing department will gladly help plan your forming requirements and layouts.

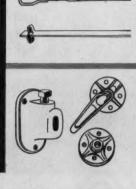
Years of experience is your assurance of competent, cost saving recommendation.

Write for your free copy of our new catalog



THE DAYTON SURE-GRIP & SHORE COMPANY
113 KERCHER ST., MIAMISBURG, OHIO

Circle 168 on Reader Service Card



* COMPACT DESIGN-90" BBC

- Wider choice of power: Gasoline, up to 200 hp; Diesel, up to 160 hp.
- New stronger frame with minimum weight.
- Wide track front axle.
- New cab; fiber glass engine housing.
- Enlarged frontal area and cooling system.
- Set-Aside fenders for easy maintenance.
- New improved front suspension and steering linkage.

HOMES ... medium-size ... economy-wise

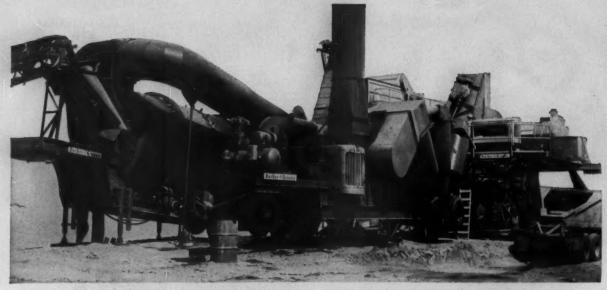
More models to match more jobs! With addition of the brand-new 158 Series, Brockway now offers a complete line of intermediate-size Huskies . . . ideal all-purpose trucks that maneuver easily in short-haul service, yet have the power range for fast, profitable, over-the-road transport, too.

These compact Huskies are low in operating cost and long on service, with many money-saving, mile-making features. They include exclusive Uni-Matched design which means that all components of Brockway trucks — power train, chassis, cab and hundreds of functioning parts — are fully coordinated in one smoothly operating unit.

This means job-matched performance and maximum economy and efficiency. Solid reasons for seeing your Brockway representative for complete details on the new line of medium-size Huskies.

BROCKWAY MOTOR TRUCKS, CORTLAND, N. Y. Division of Mack Trucks, Inc.





ONE OF 54 NEW DRYERPACS is shown on Barber-Greene Continuous Mix Plant. By offering the industry's broadest choice of dryer-dust collector combinations, only Barber-Greene gives you balanced components custom fitted to

your plant capacity and your own operating conditions. Benefits: lower initial and operating costs, longer life, higher resale.

54 NEW BARBER-GREENE ANY PLANT CAPACITY

New line developed after comprehensive two-year tests breaks dryer bottleneck in hot mix production, assures top capacity per dollar of plant investment.

Barber-Greene's 54 new Dryerpacs take the guess and gamble from selecting the correct dryer-dust collector combination needed to produce lowest cost hot mix at any rate from 65 to 350 t.p.h.

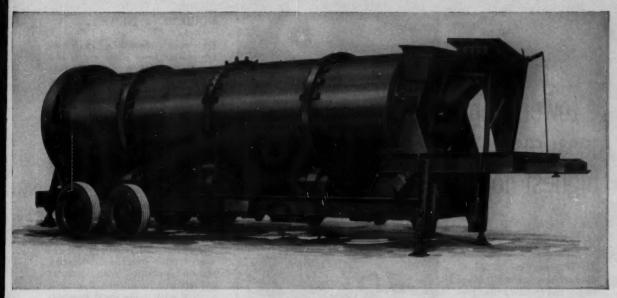
Now you can choose from 27 drying capacity ranges in either stationary or portable models. Drum sizes range from 5' x 20' to 9' x 30', and air flow capacities of 12,000 to 54,000 c.f.m. For small plants in the 30-65 t.p.h. range, you can select from two single chassis Dryerpacs.

Outgrowth of comprehensive test program

All 54 new dryer models offer optimum performance through scientifically balanced designs. By conducting the industry's most comprehensive dryer testing program, Barber-Greene was able to put the many interrelated factors influencing dryer performance in their proper perspective. And from this two year research program comes equipment that breaks the dryer bottleneck in asphalt plant production for more profitable operation.

Outstanding new dryer features include: exclusive cradle chain drive for up to four times longer chain life; self-adjusting seals that reduce fines loss and improve combustion; exclusive power driven clog-free rotary inlet chute; special Man-Ten steel plate used for drum shell handles heat stresses without warping; roto-elevator discharge eliminates pit, assures positive flow; and a complete selection of burners which can be equipped with automatic controls.

Call your Barber-Greene Distributor for assistance in selecting the Dryerpac custom fitted to your needs. You'll get further proof why the modern Barber-Greene BatchOmatic and Continuous asphalt plant lines lead the industry for lower cost high capacity production, most accurate and automatic operation, lower maintenance, and the ultimate in portability when required.



Barber-Greene Dryer Line offers industry's most advanced dryer design. All dryers in the DA series (20' drum) and DC series (30' drum) are offered in a selection of air

flow capacities. Each dryer operates with capacity-balanced portable or stationary dust collectors as one system and assures you top plant capacity per dollar of plant investment.

DRYERPACS* CUSTOM FIT FROM 65 TO 350 T.P.H.

*Dryer-Dust Collector Combinations



SEND FOR NEW BULLETINS. 16-page Dryer Principles describes and gives conclusions drawn from most comprehensive dryer testing program ever conducted. Dryerpac Bulletin shows many outstanding features of this 54-model line and presents for the first time the multitude of related factors required for optimum dryer performance. You'll find both brochures helpful in pointing the way to most profitable plant operation.

New Dryerpac line includes a complete selection of stationary drying equipment for either highway or urban batch plant operation. Matched Stationary Collectors offer flexibility in plant arrangement and disposition of collected fines. Two Wet Collector Series are available in a wide range of efficiencies to meet any air pollution code at the most economical level.



World's No. 1 Manufacturer of Asphalt Paving Equipment

Representatives in Principal Cities of the World

Barber-Greene

Main Office and Plant A U R O R A, I L L I N O I S, U. S. A. Other Plants: DeKalb, Milwaukee, Detroit, Canada, England, Brazil, Australia





ASPHALT PAVING EQUIPMENT

tower crane measures up to highest hopes

The Bucyrus-Erie Mark I-50, the first American-built tower crane, has lived up to expectations—and then some—on its first job. Here are some of its accomplishments on the construction of a 15-story apartment building by Moss Construction in Los Angeles, California:

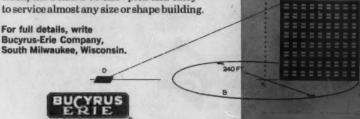


- ★ It has cut six months from the original 18-month completion estimate.
- * It has cut labor costs by 24 percent.
- * It has eliminated concrete buggies and buggy runways.
- ★ Early completion has accounted for substantial savings in interest on borrowed money.

This is how it works

The new Mark I-50 combines the reach of a truck or crawler crane with the vertical-lift feature of a construction elevator — then adds new advantages neither can match. It can stand at point "A," pick up a load from any spot

within a 240-ft-diameter circle, "B," and deliver it to point "C" or anywhere else on the structure. There is no need to rehandle material as with the elevator . . . nor to back off to point "D" as with a conventional crane. Mounted on 16-ft-gauge track, the Mark I-50 can "pick and carry" to service almost any size or shape building.



most respected name in the field

Circle 172 on Reader Service Card

EQUIPMENT NEWS ...

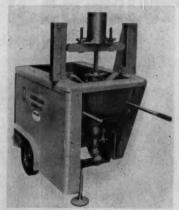
For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



Tractor Shovel Offers New Engine Options

The redesigned Trojan Model 404 4-yd tractor shovel includes new engine options with greater horsepower, a filtered hydraulic system with a low-heat generating pump, and a longer wheelbase for greater stability. The machine can be powered by either a GM 264-hp or a Cummins 250-hp diesel engine.—Trojan Div., The Yale & Towne Mfg. Co., Batavia, N.Y.

Circle 310 on Reader Service Card

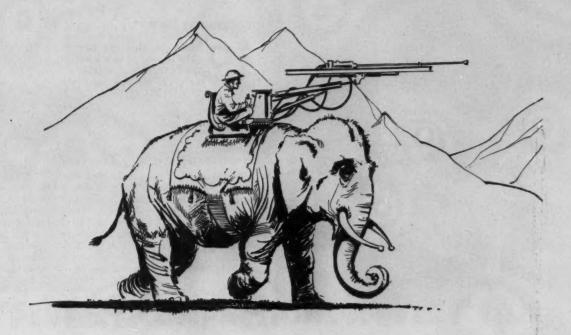


Wheel-Mounted Pump Discharges 85 Cu Ft an Hr

Able to pump at pressures up to 150 psi and discharge 85 cu ft an hr, the Model HJ-11 Hydra-Jak is used for mud jacking and soil stabilizing work and as a sand-cement grouter in backfilling sewers, tunnels, and forms. Weighing 600 lb, the Hydra-Jak is powered by a 6-hp Wisconsin engine. It is equipped with wheelbarrow-type handles and two semi-pneumatic tires and ball bearing wheels.—Air Placement Equipment Co., 1000 W. 25th St., Kansas City 8, Mo.

Circle 311 on Reader Service Card

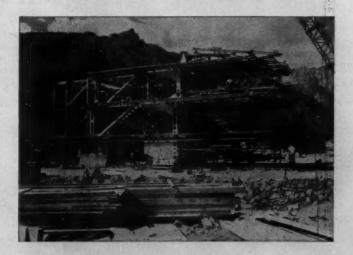
CONSTRUCTION METHODS



the latest thing in ALPINE JUMBOS

Using one of the largest and most modern boom jumbos ever built, workmen on the French side of the new Mont-Blanc tunnel are waging a winning battle against Europe's highest mountain.

The huge four-level gantry-type jumbo mounts fifteen 3½" bore Ingersoll-Rand drifters on Ingersoll-Rand Hydra-Booms that provide complete hydraulic positioning for all drills. It was built in Lyon, France, by Ferrand & Frantz, and Entreprises de Travaux Publics Andre Borie. Fourteen-foot blast holes are drilled without steel changes, using 1¾" Carset bits. A burn hole is put in each round by an Ingersoll-Rand Downhole Drill with an 8" Carset bit, to permit pulling longer rounds resulting in greater advance per man hour at less cost. Ask your Ingersoll-Rand engineer for complete information.



A CONSTANT STANDARD OF QUALITY
IN EVERYTHING YOU NEED
FOR DRILLING ROCK



Circle 173 on Reader Service Card



EQUIPMENT NEWS . . .

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.

Hammer Fits Utility Tractors

Equipped with special tools, the Henry DH-8 mobile drop hammer can be used to break concrete, cut asphalt, or tamp backfill. The hammer mounts on the rear of most utility tractors. The striker weighs 1,000 lb and will produce up to 8,000 ft-lb of impact. The striker and mast may be shifted hydraulically a lateral distance of 5 ft. The DH-8 operates by hydraulic power and features electronic control for automatic cycling. The unit can be controlled either manually or automatically.—Henry Mfg. Co., Box 521, Topeka, Kan.

Circle 312 on Reader Service Card



New Shovel Added to Line

Latest addition to the Unit line of cranes and excavators is the Model 271-C, a 1-yd-shovel that converts to dragline, backhoe, clamshell, crane, and magnet crane. Among the features is a swing circle gear assembly with upper works mounted on a ring of steel balls to cut down lubrication and maintenance. The swingers on the Model 271-C run through an oil bath that is cooled by a set of copper coils connected directly to the radiator cooling system.—Unit Crane & Shovel Corp., Milwaukee, Wis.

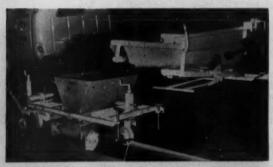
Circle 313 on Reader Service Card



New Rig Mixes, Aerates Materials

The SPRM-84 Roto-Mixer is a self-propelled soil stabilization machine that mixes and blends 3,000-5,000 yd of windrowed gravel material an hour. Powered by a 140-hp diesel engine, the machine has 12 forward and three reverse speeds with a top speed of 9 mph. The SPRM-84 has front axle drive and front wheel hydraulic steering. The machine's turning radius is 23 ft, and its length is 18 ft.—Bros Inc., 1057 Tenth Ave. S.E., Minneapolis 14, Minn.

Circle 314 on Reader Service Card



Tailgate Loader Feeds Curbers

This loader mounts on the tailgate of a dump truck and can feed 15 tph to a curbing machine. Shut-off controls are located at the right and left ends of the tailgate and on the forward part of the truck body near where a worker guides the curber. The loader is mounted on the tailgate with three hooks on cables. It can be transferred from one truck to another in 3 min.—Miller Spreader Corp., 4020 Simon Rd., Youngstown, Ohio.

Circle 315 on Reader Service Card



PERFECT COMPACTION ... EVERY TIME Rapidly and at lowest cost!

Note the compacted area in the photo above. It's exceptionally smooth, compacted to specified density from its firm surface to the required depth. And the JACKSON had no difficulty, whatever, in staying ahead of the spreader. On any job of granular soil compacting from sand to rock as used in base courses or fills the JACKSON offers the best means of achieving specified densities at lowest cost. Each of the compactor units provides 4200 3-TON BLOWS PER MINUTE. The JACKSON functions equally

well in either direction . . . no turning or deadheading required. And when occasion dictates, each of the compactor units can be fitted with an operating handle and used as a self-propelling compactor to compact the tight places other equipment cannot reach. It's the most versatile machine of its kind on the market. Both operating and maintenance costs are extremely low. And the JACK-SON service organization goes sled-length in seeing to it that you get maximum benefit from the machine.

RENT the JACKSON MULTIPLE COMPACTOR

from your local distributor. It's the no-risk way of discovering the fastest, most effective and economical method of compacting all granular soils and soil-cement mixes.



Working width is 13', 3". The two outer units on either side may be raised and made inoperative to suit narrower coverage requirements.



Changing to the 88" width, overall, for rood travel or maneuverability around other equipment is accomplished hydraulically in 30 seconds.



The new widening attachment (optional at added cost) is raised or lowered instantly . . . ideal for widening are less.

JACKSON VIBRATORS, INC.

LUDINGTON.

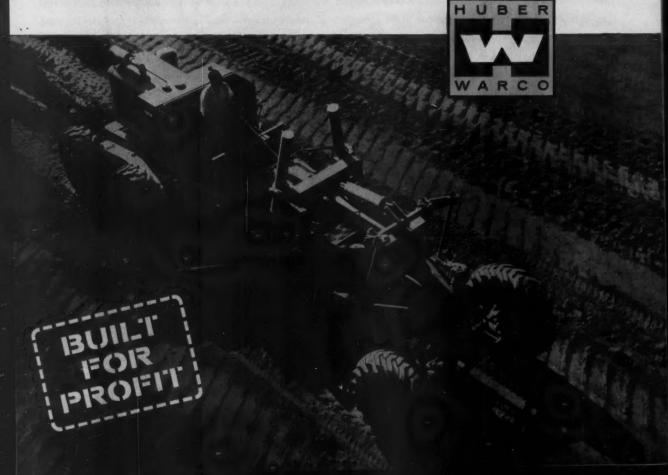
MICHIGAN

Hydraulic power makes it easy



Ease of operation, positive control, convenience - for years these and other operator suggestions have been a major factor in the design of Huber-Warco motor graders. A prime example is Huber-Warco's complete Hydraulic Control System. It eliminates fatigue, gives the operator instant positive power, allows him to operate two or more controls (all within easy reach) at once. Hydraulic power means no shoving or tugging at controls, no fear of levers kicking out of position since any cylinder can be locked in any desired position. Finer control of both heavy and the finest finish grading is assured. Best of all, Hydraulic Control develops the skill and confidence so necessary for big production. See the Hydraulic Controls as well as the other outstanding features you get in Huber-Warco motor graders and check Huber-Warco's full line of 3-wheel and tandem rollers, and maintainers at your Huber-Warco distributors soon.

HUBER-WARCO COMPANY . MARION, OHIO, U.S.A.



EQUIPMENT NEWS . . .

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



Stabilizers Offer Choice of Pugmills

Either single or twin-shaft pugmills with capacities up to 500 tons an hr are offered on two portable stabilized base mix units. One consists of a basic 5-yd surge bin with a 24-ft conveyor. The aggregate feeds by gravity onto the conveyor for discharge into the pugmill. The second unit has a 40-ft belt and combination dozing trap and reciprocating plate feeder.—Peerless Conveyor & Mfg. Co., 3341 Harvester Rd., Kansas City 15, Kan.

Circle 316 on Reader Service Card

Portable Elevator Lifts Construction Materials

Made of tubular construction with double-chain drive, the 23-in-wide E-Z-Vator raises building materials from street to roof. The basic models come in 13ft and 21-ft lengths and weigh 160 and 230 lb, respectively. Sections 5 ft or 7½ ft long can be added to create extra length. A special model designed for roofing work is equipped with buckets to lift loose



gravel to the roof deck.—Hauck Mfg. Co., 124-136 Tenth St., Brooklyn 15, N.Y.

Circle 317 on Reader Service Card



Concrete Machine For Placing, Gunning, Grouting

The Uni-Cretor can be used for concrete placing, wet gunning, hoisting and placing mortar and grout, and high and low-pressure grouting. The Uni-Cretor is powered by a 56-hp air-cooled Wisconsin engine and has a transmission with 3-speeds forward and reverse. The machine weighs 2,200 lb.—Air Placement Equipment Co., 1000 W. 25th St., Kansas City, Mo.

Circle 318 on Reader Service Card



TD-25'S Full load, full pass ends load-dropping, track-



PLANET-POWERED PUSH

stopping steering losses

You Power-steer the International TD-25 by power-shifting either track. Full-time "live" power on both tracks, gives you full-profit production!

You make full-load turns without spillage — because Planet Power-steering eliminates load-spilling, load-limiting "dead-

track drag."

With Hi-Lo on-the-go power-shifting, you shift down, to dig hard materials — shift up, to "run" with the load. When pushloading with the "25," you maintain solid contact on straightaway or curve — to speed heaping the bowls and get gearhigher "kick-outs"!

Exclusive Planet Power-steering makes the TD-25 the industry's only power-shifted 8-speed gear-drive, or 4-speed torque-converter tractor. And only the "25" is powered by the free-breathing, dual-valved 230-hp DT-817 turbocharged International diesel!

Compare bulldozing yardage delivered — time the pushloading advantages of the Planet Power-steered TD-25. Prove to yourself how "live-track" TD-25 push can multiply your "tight-bid" profits. Let your International Construction Equipment Distributor demonstrate!

Moving thousands of tons of outcrop shot-rock for mountain road right-of-way, this TD-25 picks up and delivers its full loads without sluing or slipping. Reason: with Planet Power-steering you run one track in high, the other in low speed range to equalize offset loading. And you steer with full power on both tracks full time—to avoid load-dropping interruptions!

Power-gaining Planet Power-steering helps you heapload scrapers in record time—right where clutchsteered pushers lose half their push! Power-shifting either track up or down keeps solid push-block contact on curves. Power-shifting up, an-the-go, gives gearhigher kick-outs than ordinary. And with 7.5 mph reverse, the "25" repositions faster than slower rigs!

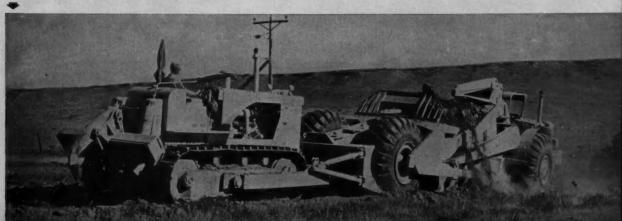


"Hanging a bench" on a mountainside, the TD-25 operator either upshifts the bank-side track — or downshifts the outside track. Then he makes full cuts under full power without "bank-nosing," rear-end skidding, or "lever fighting."



International Construction Equipment

International Harvester Co., 180 North Michigan Ave., Chicago 1, III. A COMPLETE POWER PACKAGE





Sand Creek to wet down ashy dump material; (5) Equipment grades near spur track that will be relocated.

tion with rack-and-pinion power steering; positive air-braking; fast, complete power bowl-control.





PRESENT TERMINAL AREA



Engineering Co. uses 100% IH fleet new jet runway

Northwestern Engineering Company will span Union Pacific main line tracks—Interstate Highway No. 70—and a rambunctious creek—to build the north-south jet runway at Denver's Stapleton airport.

To do this huge job, the contractor must make a fill as high as 30 feet—to be carried on reinforced concrete structures over railroad, superhighway, and creek. Moreover, he must relocate a railroad spur, and also replace the ash-like debris of an old city dump with solid fill material.

Northwestern's schedule calls for moving 4,123,000 cu yd of earth and completing the project in 400 days. And this 2.1 mile runway, that will handle the biggest and fastest jet aircraft, is being built from start to finish with International Construction Equipment.

Prove the powerful performance reasons behind this up-and-coming contractor's equipment choice. Let your International Construction Equipment Distributor demonstrate! This International 450 power unit is pumping water from Sand Creek through a sprinkler system—for wetting down old city dump debris, so the scrapers can load and remove this loose, dusty material from runway site.

0

"Chuck" Loser, Project Superintendent for "Northwestern" stands on spur railroad section which will be relocated in building the jet runway. In background, a 295 Payscraper and TD-25 tractor are at work on the \$1,895,000 contract.





Six International TD-25's give "Northwestern" the bonus dozing and pushing capacity insured by Planet Power-steering, and Hi-Lo on-the-go power-shifting. Full-time "live" power on both tracks helps doze full blades, every pass. And torque converter "25's'" speed up all four steps of the push-loading cycle.



International Construction Equipment

International Revestor Co., 180 North Michigan Ave., Chicago 1, Illinois A COMPLETE POWER PACKAGE



FROM OVERSEAS . . .



DENMARK—ViaNova's continuous hotmix plant is manufactured in three sizes: 100 tph, 120 tph (above), and 140 tph. The plants are fully portable, and no cranes are needed to erect them. Hydraulic lifting columns are included. The mix passes a rotary-weigher that measures production in quantities of 2,000 lb. —H. Nielsen & Son Maskinfabrik A/S 37, Aldersogade, Copenhagen N.

Circle 319 on Reader Service Card

GREAT BRITAIN—Primarily a tractor shovel, the ½-yd Frontloader has ample space at the rear for mounting attachments inside the chassis. Shown at right is a 110-cfm Holman Model TA 13 compressor. A pto from the tractor engine drives the compressor. Five different front-end attachments are offered for the Frontloader: angledozer blade, bulldozer blade, crane hook, forklift, and rock tine bucket.—Merton Engr. Co. Ltd., Faggs Rd., Feltham Middlesex.

Circle 321 on Reader Service Card



GREAT BRITAIN—This triple vibrating-plate compactor is available as a rear-mounted attachment for Aveling-Barford rollers. The vibrators are powered by an 8-kva-ac generator coupled to a diesel engine.—Aveling-Barford Ltd., Grantham.

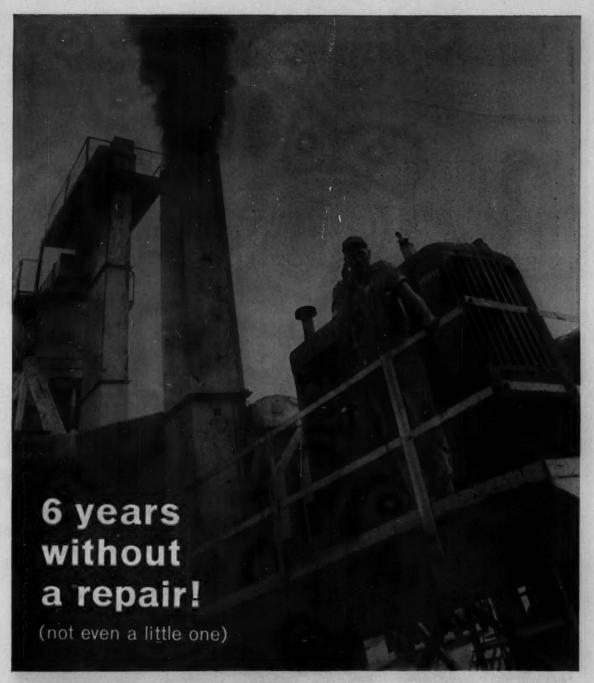
Circle 320 on Reader Service Card





SWEDEN—Libu's line of three-way dump buckets has been modified to fit all Caterpillar Traxcavator loaders. Shown at left is a Cat 966A wheel-type loader equipped with a 2½-yd bucket that is rated at 235 yph in loose material. The new models are interchangeable with standard Cat buckets without any alteration to the loader's framework. The Libu bucket handles bulky loads and can be used for bulldozing.—Libu Shovel Co. (New York) Inc., 25 Broadway, N.Y. 4, N.Y.

Circle 322 on Reader Service Card



This diesel has been powering an asphalt plant for six years. And not one repair, major or minor, has been made on the engine in all that time, thanks to proper preventive maintenance and Cities Service DC-300 oil!

To the Rein, Schultz and Dahl Company of Madison, Wisconsin, it is trouble-free operation such as this that plays so vital a role in running a profitable business. That is why they use Cities Service DC-300 oil, exclusively, in all their engines.

New DC-300 is one of the most important developments in diesel engine lubrication. It prevents sludge and clogging, stops rust and corrosion, and contains a special anti-wear additive to increase engine life. For information call your local Cities Service Office, or write: Cities Service Oil Company 60 Wall Street, New York 5, New York.

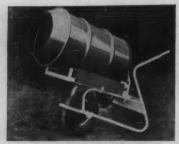
CITIES (A) SERVICE

QUALITY PETROLEUM PRODUCTS

Circle 183 on Reader Service Card

EQUIPMENT NEWS . . .

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



Portable Concrete Mixer Powered By Electric Motor

Mounted on a wheelbarrow-type steel frame and balanced on a pneumatic tire, the 4%-cu ft Porta Mixer is powered by a 1/3-hp electric motor. The unit weighs 112 lb and measures 53 in. long, 30 in. wide, and 46 in. high. It retails for \$179. — United Porta Industries, P.O. Box 87, Rochester Rd, Ingomar, Pa.

Circle 323 on Reader Service Card



Concrete Mixer Operated By Flywheel Drive Pto

Available in 5, 6, or 7-yd sizes, the Transmatic concrete mixer can be driven by a truck's flywheel drive pto, separate engine, or front-of-truck engine. The mixer can be operated by pushbutton controls located in the truck cab and at either end of the mixer. A push-button control in the cab also activates a drum drive cutout that insures full engine torque for maximum traction when needed.—The Transit Mixer Div., Hercules Galion Products, Inc., Galion, Ohio.

Circle 324 on Reader Service Card

Conveyor Drive For Short Flights

The Series 100 screw conveyor drives are designed for short conveyor flights and low horsepower requirements. The drives are offered in two speed ratios: 8:1 for up to 6 hp at 225 rpm or 18:1 for up to 3.8 hp at 100 rpm. The unit consists of a double-reduction



speed reducer with packing gland and driving shaft that mounts on a trough end. Any desired output speed may be obtained by selecting the correct V-belt drive to transmit power. Dodge Mfg. Corp., Mishawaka, Ind.

Circle 325 on Reader Service Card

A complete package ready to roll...

Heats and stores asphalt on the job

You can speed bituminous and hot mix operations with the all-new Cleaver-Brooks asphalt storage-heater plant.

Easy to get to the job, the entire unit can be moved without dismantling or repiping. Just hitch it to your tractor and you're on your way.

Easy to use on the job, it provides low-pressure, high-temperature (up to 450 F) heat with a Peak-Temp oil heater that does away with freeze-ups, pressure fittings, water problems and other costly heating problems. Check into this fully automatic, completely dependable method of heating and handling asphalt on the job. Write Cleaver-Brooks, Dept. F, 399 E. Keefe Ave., Milwaukee 12, Wis.



ORIGINATOR AND LARGEST PRODUCER OF PACKAGED BOILERS



This packaged unit is available with capacities of 10,000, 15,000 and 20,000 gallons. 300-gallon fuel tank for heater. Total weight: 22,500 lbs. with 10,000-gallon tank and CPT-8 Peak-Temp oil heater.



Livoli Foreman, Paul Quaranto with Aeroquip Distributor, discuss Aeroquip Hose Lines needed for a backhoe.



Backhoe ready for work, newly equipped with a set of Aeroquip Hose Lines.

How Aeroquip Hose and Reusable Fittings save time and money

for Paul Livoli, Inc., General Contractors, Watertown, Mass.

Paul Livoli, Inc., has standardized on Aeroquip Reusable Fittings and Bulk Hose to keep downtime to a minimum on equipment now being used to clear land and put in streets for a new subdivision in Framingham, Mass.

Livoli is the contractor on this project, in which 210 large homes are being built on 175 acres of land. He subcontracts the work on homes, foundations and wiring.

Genalco, Inc., is the Aeroquip Distributor who services all of Livoli's requirements. Genalco furnishes a supply of Aeroquip Bulk Hose and Reusable Fittings for making assemblies on the spot and advises on proper installation and maintenance of hose lines.

Call your local Aeroquip Distributor for help on hose line problems. He is listed in the Yellow Pages of your telephone directory.





Circle 185 on Reader Service Card

"NEWTYPE" THE Fighting HOSE



COVER—Fights hard knocks, rough use, abrasion, sunlight, weather.

CARCASS—Fights kinking, buckling, collapsing. If crushed by equipment, can be rounded into shape again with mallet or hammer.

TUBE—Fights abrasive wear, alkaline water, mild acids.

FOR SUCTION AND DISCHARGE

"Newtype" is a Goodall "Standard of Quality" hose built to keep your pumps operating at maximum capacity, with long-lasting freedom from shutdowns for repairs and replacements. Sizes 11/4" to 4" I.D., in lengths up to 50 feet. Easily identified by green spiral stripe on black cover.



"If it's GOODALL, it MUST be GOOD!"

Contact Our Nearest Branch for Details and Prices

Manufacturers of Mechanical Rubber Products - Since 1870

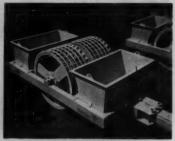


Branches and Distributors Throughout the United States and in Canada

Circle 186 on Reader Service Card

EQUIPMENT NEWS . . .

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



Grate Roller Cuts, Crushes, Compacts

The Crusher-Pak can be used to aerate sub-base material or to crush rock. Its drum diameter is 64 in. The diameter of the bars is 1% in., and the grizzly openings are 3% in. The ballast tanks each hold 50 cu ft. The Crusher-Pak's maximum loaded capacity is 40,-000 lb. Thunderbird's line also includes 10 and 121/2-ton self-propelled pneumatic-tired rollers. 60-ton towed pneumatic-tired rollers, and three sizes of sheepsfoot rollers.—Thunderbird Engineering, Inc., 2811 Dawson Rd., Tulsa 9, Okla.

Circle 326 on Reader Service Card



Air-Cooled Centrifugals Join Pump Line

A series of seven air-cooled diesel-powered centrifugal pumps supplements Rice's present water-cooled line. The new selfpriming pumps are available with 2, 3, 4, and 6-in. openings. Capacities range from 15,000 to 90,-000 gal an hr. The diesel engines are four-cycle, crank-start types with electric starters as optional equipment.-Rice Pump & Machine Co., Belgium, Wis.

Circle 327 on Reader Service Card

DOUBLE GRAY-X lasts longer

Tests prove CF&I-Wickwire's premium wire rope has 45%* more bending life than average of other ropes tested

In an extended series of tests conducted at CF&I's Palmer Plant, five brands of wire rope were tested to destruction on a 25,000-pound fatigue machine that bends wire rope back and forth over sheaves until it breaks.

All the ropes tested were made by major manufacturers, and were identical in size and specification. And all exceeded the catalog-breaking strength of extra-improved plow steel rope. But, as the chart indicates, one rope outlasted all the others at every safety factor used in the test. That rope was Double Gray-X!

DOUBLE GRAY - X 13 12 ROPE A THOUSANDS OF CYCLES ROPE B 5 All test ropes were 1/2" 6 x 25 FW Preformed Extra Improved Plow Steel Lang Lay IWRC. All ropes loaded to 7667, 5750, and 4600 pounds, coinciding to 3 safety factors of 3.47, 4.63 and 5.78 for EIPS ropes, or 3, 4 and 5 for IPS ropes. 2 4.63 5.78 0 **FACTOR OF SAFETY**

At the highest and most commonly-used safety factor, CF&I-Wickwire's premium wire rope lasted 30% longer than the rope that survived next longest, and 68% longer than the rope that lasted the shortest length of time. Double Gray-X lasted 45% longer than the average of all other ropes tested at this safety

Double Gray-X has greater resistance to bending fatigue, the chief enemy of wire rope life, because it is the result of a breakthrough in wire-drawing technology. The use of molybdenum disulphide in the drawing process produces these outstanding fatigueresistance factors:

- A Molecular Shield . . . which prevents the wires from grinding together as the rope operates.
- Smoother Wire Surfaces . . . providing better resistance to fatigue.
- Extra Toughness . . . because molybdenum disulphide helps preserve the inherent toughness of the wire during drawing.

Double Gray-X can save you money because it lasts longer on even the most punishing jobs, as proved by these tests and by field reports from satisfied users. This longer-lasting wire rope cuts repair and replacement costs, lowers your total wire rope investment and reduces machine downtime. Use the wire rope of tomorrow today! Ask your CF&I salesman for complete

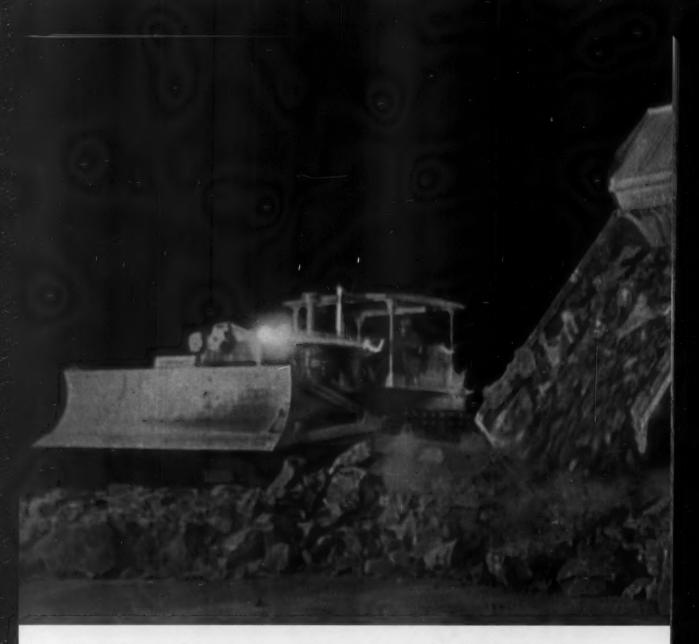
*Percentage above average of all other wire ropes tested at safety factor



Colorado Fuel and Iron Corporation

Denver - Cakland - New York Sales Offices in All Key Cities

Circle 187 on Reader Service Card



Gulf products and service help V.N. Green on 4-million cubic yard excavation job...

The hills around Charleston, W.Va., present no easy task when it comes to building highways. Valleys, steep slopes, meandering creeks, soft shale and plenty of hard rock mean peak performance from equipment is a must.

When V. N. Green and Company, Inc., Charleston, W. Va., started a 2.8-mile stretch of Interstate 77, they planned ahead to assure peak equipment performance. Example: central fuel storage with underground tanks on the job site. These tanks were used to store 12,000 gallons of Gulf Dieselect® fuel and 4,000 gallons of Good Gulf® gasoline.

"With 60 pieces of equipment working 20 hours a day, we averaged 32,000 cubic yards of earth and rock each day," said Harry Staples, Maintenance Superintendent. "You don't worry about fuel until you see what it takes to keep that much equipment going 20 hours a day," he continued. "That's where our underground storage tanks came in handy. And thanks to good Gulf service our fuel supply never even ran low. Furthermore, our gasoline and diesel engines delivered top power and performance."

To get the most out of your equipment try clean burning Gulf fuels on your next project. You'll soon



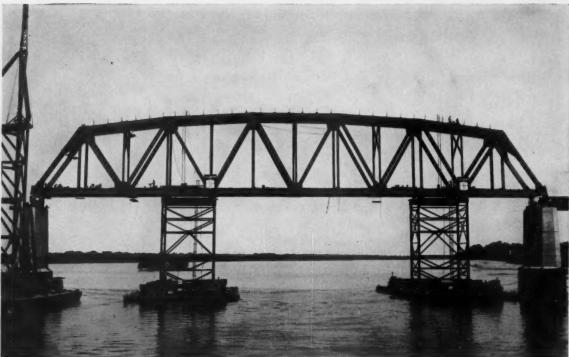
keep ahead of schedule GULF MAKES THINGS RUN BETTER!

see how Gulf makes things run better! Contact your nearest Gulf office for a quotation. For helpful maintenance tips, and information on Gulf products, write for 88-page "Contractor's Guide."

QULF OIL CORPORATION Dept. DM, Gulf Building Houston 2, Texas GULF

H. F. Johnson, right, Project Superintendent, and Ray Kerwood, Gulf Sales Engineer. You get expert, on-the-job engineering service from Gulf.





Owners: Chicago, Burlington and Quincy Railroad Co. Consulting engineers: Howard, Needles, Tammen and Bergendoff

Longest railroad bridge to be high-strength bolted





The entire 4½-mile-long, CB&Q Railroad crossing, bridging the Mississippi near Quincy, Illinois, was designed for field riveting. But unusually high flooding and difficulty in locating experienced riveting crews caused delays in completing the 336-ft throughtruss span, shown above. To speed up the job, Bethlehem requested the approval of the CB&Q to bolt the remaining two-thirds of the crossing, requiring 140,000 high-strength bolts.

The switch to high-strength bolts allowed trains to use the new bridge weeks earlier than riveting would have permitted.

Bolting is fast, economical, reliable

High-strength bolts are ideal for both railroad and highway bridges. They speed erection. And they hold firmly in place after years of constant vibration, a fact which has been proven in a series of field tests held under the supervision of the Association of American Railroads.

FREE BOOKLET—Information on Bethlehem high-strength bolts, complete with latest specifications and a section on how to order high-strength bolts, is available in our booklet, "High-Strength Bolting for Structural Joints." For your copy call the Bethlehem office nearest you, or write to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL





Performance
Operator comfort
Wearability
Ease of maintenance
Reliability

WITH ALLIS-CHALMERS

Here's a project geared to the demanding standards of today's earthmoving men...bringing them the benefits of Allis-Chalmers' massive research and development in the form of significant product improvements. Here, for example, is some really special news about tractor loaders.





ANOTHER BIG TRACTO JOINS THE ALLIS-CHA

a line designed to help you set new production records...w

184-HP TL-30

Here's extra power and capacity to step up your production, excavating, hauling and dumping. The TL-30 gives you all of the basic performance advantages that have earned Allis-Chalmers loaders wide acceptance around the world.

You'll go for the TL-30's new 10,500-lb carry capacity... up to 16 percent more than others in its class. When it comes to economy, the Allis-Chalmers 11000 turbocharged engine really has it! This diesel develops 184 hp... up to 13 percent more power than in competitive rigs. Allis-Chalmers' controlled turbulence principle features an open combustion-chamber design that gives you thorough mixing of air and fuel for complete, fast and even combustion... high fuel economy. Extra dumping height and more usable reach are just two other advantages that put the TL-30 head and shoulders above anything in its size range.



TL-14

TL-10

TL-16

TL-20

TOR LOADER HALMERS LINE...

.whatever your over-all job requirements.



TL-30 10,500-lb carry capacity 2½- to 6-cu-yd buckets Weight: 28,400 lb



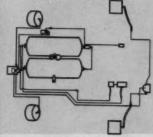
to this important TRACTOR LOADER STORY

There's more

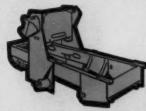
turn the page ...



11000 turbocharged diesel engine -conservatively rated at 184 hp. One of the healthiest lines of engines in the business, with unmatched fuel economy.



Safe, sure braking power four-wheel air brakes let you work with confidence even on the steepest grades or stockpiles.



Full box frame-high-strength steel provides a solid backbone for the tractor loader . . . soaks up stress and strain.



ARROWHEAD cutting edge-provides added strength and protection for the bucket bottom and sides . . . extends service life.



10,500-lb carry capacity-gives the TL-30 as much as 1,500 lb more carry per bucket load than others of comparable size.

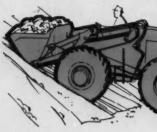


Full command in the palm of you hand—with single-lever control. Yo go into and out of any speed, forwar or reverse, with just a quick movement of the lever. Operators work a peak capacity all day long.



These importa AVAILABLE TO

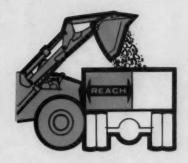
... exclusive built-i

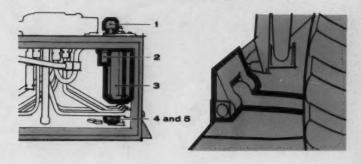


Ideal dump cylinder location—up an away from dirt and grit that scor piston rods...damage vital hydrauli components. And, because cylinder are not attached directly to the bucket, there's less dead weight... more "pay" weight.

Production-boosting attachments special buckets, lift forks, crane hoo backfiller blade, bucket teeth, rippe log tongs, long booms. f your ol. You orward moveork at Extra lift and reach—brings fast, smooth loading of high side-boarded trucks. The TL-30, for instance, offers 10' 4½" of dumping clearance . . . a foot or more extra lift than others of this size.

5-way hydraulic filtering—for complete system protection. Two air filters and three hydraulic oil filters assure peak operating efficiency...extended service life. Filters are easily accessible for cleaning and replacement. Pin-connected axles—directly attached to the frame with thick, solid steel pins (not lightweight U-bolt connections). On rugged terrain, there's no shifting or rolling of axles under load. Allis-Chalmers tractor loaders stay on the job.





rtant advantages are

TO YOU ONLY IN ALLIS-CHALMERS TRACTOR LOADERS

It-in advantages



ip and

score traulic

inders

o the

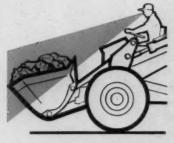
ht . . .

19'½" RATIO 42.8%

Top stability—For example . . . the TL-30 has an 8' 2" wheel base to a 19' ½" over-all length . . . a 42.8 percent ratio of wheel base to length for plenty of stability to eliminate tipping or spilling even on rough terrain.



Key starting—just like a car. No cranking, pumping or waiting for these machines. Just a turn of a key and you're ready to work.



Control tower visibility—with tapered hood . . . narrow cowl and unobstructed view of front-mounted equipment. Bucket-type seat is adjustable to operator's own preference.





See an Allis-Chalmers tractor loader before you buy your next unit. You'll find a model and size best for you in every way—in power, in production, in value. Your Allis-Chalmers dealer will demonstrate on your job, gladly!



PROTECT YOUR EQUIPMENT INVESTMENT WITH COMPLETE SERVICE

When you invest in Allis-Chalmers equipment, you get top performance in *every respect*. Your Allis-Chalmers dealer is fully equipped to serve you completely, conveniently. Make him your single source for:

- Complete Parts Service—original-quality parts on hand to meet your requirements quickly.
- Ready-to-go Exchange Assemblies—completely reconditioned assemblies on call. Your trade-in assembly is rebuilt without overtime charges... your machine is back to work quickly. Your cost? Only parts and regular-time labor needed to recondition your old assembly.
- Specialized Service—Shop or Field—top-notch mechanics are factory-trained to service your needs efficiently in a fully equipped shop or on your job.
- Tailored Financing—terms suited exactly to the financial requirements of all your machinery needs.

From one convenient source, then, you get the complete service package—job application information, new and used equipment, parts, service and financing. Who could be more interested in backing you up than your own dealer? That's his business!

Your every transaction in sales, parts, service and financing is fully backed and

ALLIS-CHALMERS

POWER FOR A GROWING WORLD



EQUIPMENT NEWS ...

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



Concrete Grinder
Cuts 5-in.-Wide Swath

A series of rotating high-carbon steel cutters enable the EDCO Concrete Plane to grind the surface of a slab ½ in. deep and 5 in. wide. Worn cutter assemblies on the gasoline-powered, rubbertired machine can be changed in less than 3 min.—Equipment Development Co., Inc., 2700 Garfield Ave., Silver Spring, Md.

Circle 328 on Reader Service Card



Controls on Rock Drill Move with Swinging Boom

Drilling controls on this crawlermounted rock drill are located on an arm that moves with the swinging boom. The operator can swing in close to the drill to start a hole, then swing back from the drill to get away from the resultant rock dust. The Model TDM-B1 is equipped with Joy's 450-DR Dual Rotation drill. The drill and feed, which handle 12-ft steel changes, are hydraulically positioned.—Joy Mfg. Co., Henry W. Oliver Bldg., Pittsburgh 22, Pa.

Circle 329 on Reader Service Card

Subgrader Widens to 28 Ft

Power widening of the Model SWS-200 subgrader is governed by a panel of push-button electric and hydraulic controls. The frame can be widened in 4-ft increments from 12 ft to 28 ft. The automatic control sets the frame, conveyor, and cutter bowl up to a 4-ft adjustment. Beyond that it is necessary to add sections to extend the conveyor and cutter unit. The SWS-200 has a standard cutting



depth up to 12 in.—Blaw-Knox Co., Construction Equipment Div., Mattoon, Ill.

Circle 330 on Reader Service Card



Machine Lays 24-in. Curbs

The High Curber lays concrete or asphalt curbs from 12 to 24 in. high without forms. The machine can negotiate a contour, move up or down grade, and turn a 12-ft radius curve. A 12-hp Wisconsin engine powers the High Curber.—Power Curbers, Salisbury, N.C.

Circle 331 on Reader Service Card



name's
NEENAH

and
the
products
are
GRAY and
DUCTILE
IRON
CONSTRUCTION
CASTINGS
of finest
QUALITY
FINISH
UNIFORMITY



Delivery is prompt: we have huge on-hand stocks of standard items

> PLUS 15,000 patterns PLUS

a daily production capacity of 500 tons in our two plants.



Name's Neenah...if we make it it's a casting... and the best.

New 168-page catalog shows our line. It's sent promptly when requested.

NEENAH FOUNDRY

NEENAH . WISCONSIN

Chicago Office

Circle 197 on Reader Service Card



Flexible as a Rope...And Weighs Less Than Any Other Hose Of Equal Working Pressure

Only Raybestos-Manhattan offers unique Homoflex construction. Rubber penetrates and bonds hose plies to produce a rugged, inseparable tube-to-cover bond—yet Homoflex is lighter, easier to handle than any other hose of equal working pressure!

It's mandrel-made with no pre-set twist, so it coils and uncoils freely in any direction *without* kinking with less fatigue to operator. This R/M feature construction has proved the longest lasting, most economical hose you can specify. Made also for water service.

Other R/M hose types are engineered for special job conditions. Let your R/M distributor show you how to get More Use per Dollar with R/M hose.

STRONG-LIGHT-KINKLESS



EXCLUSIVE HOMOFLEX CON-STRUCTION makes strength member and tube virtually inseparable for long, troublefree service. Uniform inside and outside diameters permit faster, safer, easier coupling faster, fuller flow.



RAYBESTOS-MANHATTAN, INC.

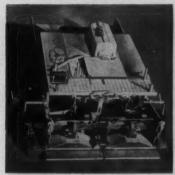
MANHATTAN RUBBER DIVISION . PASSAIC, N. J.

ENGINEERED RUBBER PRODUCTS

Circle 198 on Reader Service Card

EQUIPMENT NEWS ...

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



Finisher Features Automatic Level Control

Blaw Knox's Super Paver includes automatic level control through augers, a 12-ton capacity hopper, hydraulic folding sides on the hopper, and one-piece screed design. Powered by a 106-hp Hercules gasoline engine, the rubber-tired bituminous finisher paves at eight speeds, ranging

from 16 to 117 fpm, and travels on the road at speeds up to 11 mph. The machine's slat-type conveyors have independent right and left controls linked with right and left operation of augers that correspond with screed width.—Construction and Equipment Div., Blaw-Knox Co., Mattoon, Ill.

Circle 332 on Reader Service Card

Saw Operates at Two Speeds

The Model 701 Recipro metal cutting saw utilizes two speeds for different gages and densities of metal. The saw operates at 1,000 strokes a min for stainless steel, cast iron, and hard abrasive material. For cutting mild steel and non-ferrous materials it operates



at 1,400 strokes per min. Standard equipment for the 701 includes four assorted blades, blade clamp key and holder, and an all-steel carrying case. The unit retails for \$124.50.—Skil Corp. 5033 Elston Ave., Chicago 30, Ill.

Circle 333 on Reader Service Card



Bucket Mixes Materials

Manufactured in any size to fit any tractor or fork lift, the Porta-Mix loads and mixes concrete, plaster, terrazzo, and road patch material. A mixing screw can be operated at various speeds, depending on the tractor engine's rpm. The screw operates in reverse to empty out the bucket.—Dotmar Industries, Inc., 502 Hanselman Bldg., Kalamazoo, Mich.

Circle 334 on Reader Service Card







RAMP HOIST with WINCH

ONE MAN OPERATION

The complete operation of the SCHWARTZ RAMP HOIST is done hydraulically so only one man is required to load, transport, and unload equipment. The heavy winch cable is attached to the equipment and the powerful winch pulls the load up the inclined ramp. When in place, the ramp is hydraulically lowered into place and you're ready to roll at highway speeds.

 Models to fit factory tandems or locally installed tandems, 120" cab to tandem center or longer. You'll save valuable time and labor by moving powered equipment, heavy machinery, and tools faster and easier with a SCHWARTZ RAMP HOIST. This new, heavy duty model is designed specifically for contractors, haulers, and industrial firms to simplify the transporting of equipment and eliminate the need for cumbersome, heavy trailers for medium weight equipment.

For complete information, write Dept. RH-16

CHUARTZ MANUFACTURING
GOMPANY

LESTER PRAIRIE • MINNESOTA

Circle 199 on Reader Service Card

Tandem Roller Works in Pipe Trenches



LATEST MODEL —Each drum of the tandem sheepsfoot roller rotates within a frame equipped with blades for scraping mud off the drums. Each drum is equipped with 49 tamping feet and weighs 1,150 lb when empty.



IN OPERATION—A side boom attached to the frame of a dozer blade pulls the roller. It is equipped with a swinging hitch that allows the roller to move up and down within the trench. The tow bar is 8 ft long and can be attached to either end of the roller so it can change direction.

A SHEEPSFOOT ROLLER that fits inside a pipeline trench cuts compaction costs and speeds backfill operations for a Houston, Tex., utility. The rig also helps the company meet rigid Texas Highway Dept. specs for compacting backfill in trenches that cross highways.

On its earlier pipeline work, the firm compacted backfill with various types of hand-held tampers. When work began on the Interstate System, highway inspectors rejected these compaction methods because they did not meet Interstate standards.

To meet the new specs, members of operating and engineering departments of Houston Natural Gas Corp. developed a tandem sheepsfoot roller that is just wide enough to fit into a 16-in. trench.

The first roller was made from sections of heavy pipe that were mounted on truck axles. Pipe nipples with flat ends were welded to the drums to serve as tamping feet. To increase the weight of the roller, engineers tried filling the drums with water, then heavy drilling mud and, finally, sand.

After field-testing this unit, Houston Natural Gas built another unit with design improvements and modifications. One change was the substitution of conventional sheepfoot tampers for the sharp pipe nipples, which had tended to bog down in wet soil. On the new roller, each drum is held in place by a separate steel frame that has cleaner blades to scrape mud off the drum. The towing linkage also was redesigned to give the tractor operator better control of the dual-drum roller.

The roller currently in use is 23 in. wide outside-to-outside and consists of two 24-in.-dia drums made from pipe. Ends of the drums are covered with ½-in.-thick steel plates. Each drum has 49 tamping feet that are spaced to cover the entire width of the roller. The drums weigh 1,150 lb each when empty; for better compaction, each is ballasted with 850 lb of metal shot.

A side boom mounted on the dozer frame of an International Harvester TD14A crawler tractor pulls the roller, which can work in either forward or reverse. To change directions, the tow bar simply is switched from one end of the tandem roller to the other. A swinging hitch that permits the drums to move vertically connects

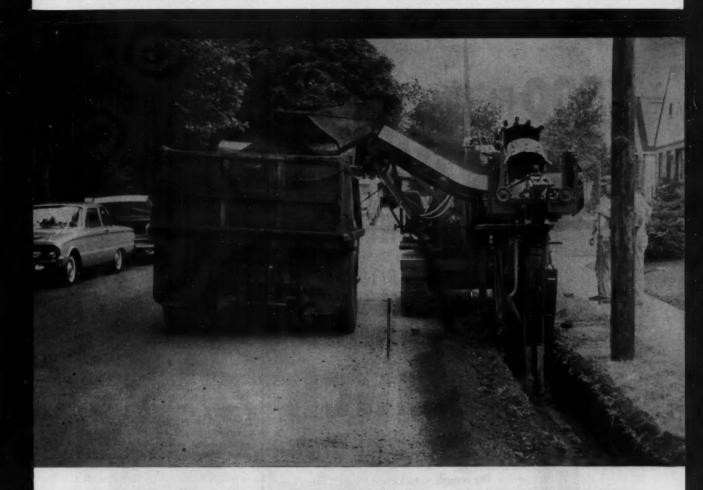
the 8-ft-long tow bar to the side boom.

To backfill, dirt is placed in the trench in 4 to 6-in. lifts. Depending upon the type of soil and its moisture content, the roller makes four to ten passes to compact each lift. Under average conditions, six passes are enough to meet most highway specs.

Houston Natural Gas Corp.'s chief engineer, W. C. Dahlman, says that an experienced crew is able to compact about 5,000 ft of 60-in.-deep trench in a 10-hr day. Compaction costs with this method average about 0.9¢ per 100 ft of trench. With air-operated tampers the cost was about 5.6¢ per 100 ft.

The sheepsfoot trench roller works satisfactorily on pipeline trenches that parallel highways or cross open areas. Its operation is limited in built-up areas where telephone poles, culverts, and buildings are located near the trench. In these locations, hand tampers compact backfill.

Most of the credit for developing the roller goes to Lawrence Elling, design engineer, and Willie Hopfe, assistant Houston district engineer of the Houston Natural Gas Corp.



CLEVELAND TRENCHER REPLACES 3 MACHINES — DOUBLES PRODUCTION FOR ROAD CURBING

On the 16-inch curbing job above, a Cleveland JS-30 Trencher:

- truck-loaded excess spoil
- placed required fines for final backfill
- sneaked past poles and trees
- kept traffic lanes open
- replaced one grader one front-end loader
- DOUBLED DAILY PRODUCTION

Nothing digs trench like a trencher — and the Cleveland Model JS-30 fits more jobs than any trencher ever built.



4500 Ft. Lbs. of Torsional

IMPACT NEW

Portable

11/4" Drive

SWENCH®

Manual Impact Wrench

Big enough to tackle the tough "frozen" nut and bolt removal jobs . . . light enough for one man to use — the new 1½" SWENCH! Take it anywhere, even hard-to-reach spots — SWENCH needs no auxiliary power sources or connections — the power is built into the wrench. SWENCH is the fast, safe and economical way to loosen and tighten heavy duty nuts and bolts. Try the SWENCH, the manual impact wrench that delivers more effective impact than any tool its size. Available in sizes from ½" square drive to 1½" square drive.

See for yourself. Line up your toughest job, and ask your industrial distributor for a demonstration. It will convince you.

Don't Wrench it— SWENCH it!

MARQUETTE DIVISION

CURTISS M WRIGHT

CORPORATION

1145 Galewood Drive, Cleveland 10, Ohlo Distributed in Canada by Canadian Curtiss-Wright Ltd. TORONTO & MONTREAL, CANADA

Circle 202 on Reader Service Card

EQUIPMENT NEWS...

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.



Choice of Capacities Offered In Single-Stage Compressors

Worthington has superseded its 85, 125, and 250-cfm two-stage compressors with one-rotor, one-stage models with the same capacities. The number of parts has been cut from 213 (in the old two-rotor models) to 79. As a result, the weights of the Mono-Rotors have been cut as much as 20% and maintenance requirements are reduced. All three models carry one-year warranties.—Worthington Corp., Harrison, N.J.

Circle 335 on Reader Service Card



Device Switches Truck Crane From Road to Rails

A 121/2-ton or a 15-ton P&H truck crane can be fitted with an adapter that enables a crane to travel on railroad tracks at 35 mph. The adapter is mounted on the front and rear of a crane. To transfer the crane from highway to rail operation the operator simply drives the crane over the tracks and, with a hand crank, lowers the front flanged wheels to the rails. Then, he raises the crane's front tires free of the rails. The rear steel wheels are lowered the same way, but the rear tires are lifted only enough to place part of the weight on the adapter. Harnischfeger Corp., 4444 W. National, Milwaukee, Wis.

Circle 336 on Reader Service Card

Fruehauf Construction Trailers Are **BIG MONEY MAKERS!**



HOIST-TYPE DUMPS-

wide range of designs in steel or frameless aluminum with weight savings up to 3,500 pounds. Single or tandem axle. Single or twin frontmounted or undermounted telescopic hoists. Available with sand and gravel or rugged rock bodies. Toughest units on the market!



FRUEHAUF BOTTOM HOPPER DUMPS are

rugged rough-terrain units. They are excellent for hauling sand, gravel or aggregates. Frameless high-tensile steel body. Tandem models with 14 to 30 cubic yard payloads for high-profit, lower-cost hauling.



PLATFORM TRAILERS—designed for years of rugged service. Fruehauf Platforms range from brawny 50,000-pound capacity Workhorse units to lighterweight multi-purpose units. Lengths from 211/2 feet for single axle units to 42 feet for tandems.



HIGH-TEMPERATURE INSULATED TANKS - engineered to haul bigger payloads of asphalt, road oil, or similar products. Tank capacities range up to 9,000 gallons. Available in steel or weight-saving aluminum. Safely transports liquids with temperature requirements ranging from 150° to 450° F.



For Forty-Seven Years-World's Largest **Builder of Truck-Trailers!**

FRUEHAUF TRAILER COMPANY

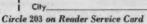
10949 HARPER AVENUE . DETROIT 32, MICHIGAN

Please send me Fruehouf's complete line folder for 1961.

Name

Company_

Address_













CONCRETE FORMING PROBLEMS

PROFITABLY SOLVED

RENTING UNI-FORM PA

Over the years thousands of contractors have rented UNI-FORM Panels to form concrete and save money. on almost every conceivable type of job, from house foundations to mammoth industrial projects. Renting UNI-FORM Panels is simple . . . You send us a set of plans and we will send you a rental proposal based on what you would need. You will get a tailor-made forming system delivered to your job. But the big advantage is that you will be able to use a forming system that will out-perform any other method you might use. Write today for the complete story on UNI-FORM Panels or send us a set of plans; either way we will be glad to hear from you.

CLAMP CO. 1238 N. KOSTNER AVENUE . CHICAGO 51, ILLINOIS

SAN LEANDRO

LOS ANGELES

New Product Briefs

For more information, circle the key number found at the end of each item on the READER SERVICE CARD. which is just inside the back cover.

FM MONITOR-RECEIVER, the Defender, can be used in a car at 12 v or elsewhere with an ac power supply. Model RA-52 is for low band range, and Model RA-150 is for high band range.-Checker.

Circle 337 on Reader Service Card

CENTRIFUGAL PUMPS in 11/2-in. and 2-in. sizes are powered by 2hp and 3-hp engines, respectively. Total head for both Rapidayton Nomad models exceeds 90 ft with 5,000 gph and 7,200 gph.—Tait.

Circle 338 on Reader Service Card

MORTAR PENETROMETER for evaluation of initial set of concrete measures resistance up to 700 psi. -Soiltest.

Circle 339 on Reader Service Card

ALUMINUM TRIPOD with telescoping legs weighs 36 lb, has 11/2-ton capacity, and is designed for oneman use. The legs adjust up and down and position at any angle. -Wallace.

Circle 340 on Reader Service Card

ABRASIVE BLADES, the GC 3000 series for sawing green concrete, has two layers of reinforcing through center of the blade and two additional layers at the hub to prevent breakage.—Clipper.

Circle 341 on Reader Service Card

TWO-WAY WRIST RADIO weighs 3 oz, operates on 27-mc Citizens Band, and works off a 9-v battery. The Spacephone is smaller than a cigarette pack. Range: up to 2 mi. Price: \$24.95.—Electrosolids.

Circle 342 on Reader Service Card

OIL CONDITIONER INDICATOR, Model G, is gage-type meter that shows when crankcase oil is affected by fuel dilution, dead filters, water leakage, wrong grade make-up oil, etc.-Gerin.

Circle 343 on Reader Service Card

TUBULAR WIRES of stainless steel are designed for hard-facing and rebuilding by automatic and semi-automatic welding processes. Wires are available with 3/32in. to 3/16-in. dia.-Stoody.

Circle 344 on Reader Service Card



The Only Shovels Engineered for Construction Work

Our Razor-Back and Razor-Lite shovels are forged with an extra-strong (13 gauge) center backbone that extends from the top of the socket all the way to the cutting edge. To lighten their weight, our blades are tapered thinner at the sides, where shovels never wear out. Give more service per dollar than any other contractor's shovel. The only shovels "fully guaranteed" in writing.

2 Types to Fit Your Need . . . Order From Your Regular Supplier:

RAZOR · BACK® For Big Loads and Super-Strength

RAZOR · LITE® Strongest and Lightest Lightweight Shovel

Simplified Design

Sheppard

POWER

STEERING

Only 4 Moving Parts

THE UNION FORK & HOE COMPANY, Columbus 15, Ohio Circle 205 on Reader Service Card



EASY ONE-DAY INSTALLATION

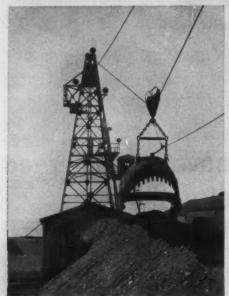
Not a booster unit . . . but heavyduty, full-time hydraulic power steering that speeds work, cuts accidents and eases strain on machine and operator. Simplified design permits easy installation and maintenance.

Get the facts at your CATERPILLAR Distributor or write:

Sheppard Power Steering is original equipment on many models of Brockway and Mack Trucks, Koehring Dumpsters, Allis-Chalmers Graders, Huber Warco Maintainers, Champion Graders by Dominion Machinery, Fire Engines by American La France, Schleid-Bantam Cranes and many others.

Circle 255 on Reader Service Card

Tough Digging, Long Hauls... Routine Jobs for Sauerman DragScrapers



240-Ft. Bank . . . 350-Ft. Haul

This mobile Sauerman Tower Excavator digs 480 yds. per hr. on an average haul of 350 ft. from a high bank to a portable field hopper. The 12-yd. Crescent DragScraper operates between steel head and tail towers. The towers are mounted on two sets of railroad tracks and ride on four sets of trucks. Drag-Scraper power is supplied by two hoists mounted on the head tower. One hoist operates the load and pullback cables, the other is used to tension the track cable. The hoists are controlled by one operator located in the cab on the tower. The load cable handles over 400,000 tons of material before replacement.



Drawing shows typical mobile tower excavator digging in wet pit.

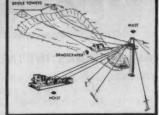
75 Ft. Under Water . . . 800-Ft. Span

A 5-yd. rapid-shifting DragScraper supplies about 200 yds. per hr. to the plant hopper in background. Bridle tower in foreground is one of two supporting the bridle shifting cable which is controlled by the third drum of the Sauerman hoist. Lateral shifting of the DragScraper's line of operation is readily accomplished by power-shifting the trol-

ley and tail block to a new position on the bridle cable. The DragScraper is digging 75 ft. under water and the operating span is 800 ft. from head frame to the bridle towers. Over a million tons have been excavated from this pit. The DragScraper often operates 24 hrs. a day to handle contract demands.

Diagram shows details of Sauerman rapid-shifting DragScraper.





Saverman machines dig and havi in one continuous operation . . . work on high bank, dry pit or under water . . . handle most bulk materials. Consult Saverman engineers about your job. We will promptly supply appropriate literature.

SAUERMAN

BROS., INC. BELLWOOD, ILL.
Linden 4-4892 • Cable CABEX-Bellwood, Illinois

Cryscant Scrupers - Slackline and Tautline Cableways + Duralite Blocks

Circle 206 on Reader Service Card

NEW PRODUCT BRIEFS...

For more information, circle the key number found at the end of each ttem on the READER SERVICE CARD, which is just inside the back cover.

welding machines permit inert gas shielded welding with as little as 1 amp. Model ADI-2641 has ac range from 1300 amps, dc from 1-350. ALI-3641 has ac range from 1-375 amps, dc 1-410. —Hobart.

Circle 345 on Reader Service Card

TAMPING ROLLER for high-speed compacting weighs 12,650 lb empty. The Road Runner Wedge-foot model FDB120 yoke tongue roller has 4-ft-dia drum that is 5 ft long.—American Steel Works.

Circle 346 on Reader Service Card

SUBMERSIBLE PUMP. Bibo 3-in., weighs 88 lb, has 20,000-gph capacity. The electric pump is available in 220/440 and 550-v 3-phase and 220-v single phase.—Flygt.

Circle 347 on Reader Service Card

POWER STEERING for Oliver 550 and Super 55 wheel tractors is available in field conversion kits and on new models. Hydraulic power is applied directly to steering knuckle arms.—Oliver.

Circle 348 on Reader Service Card

HEATED ROLLER operates on LPgas and can be for smoothing asphalt, drying wet spots, and removing painted lines. The Rola-Burner is offered in 180-lb and 207-lb models.—Mutual.

Circle 349 on Reader Service Card

PORTABLE SAW operates safely in any atmospheric condition. Its standard operating speed is 6,000 rpm, developed from direct motor to blade drive with no gearing. Weight: 13 lb.—Master Power.

Circle 350 on Reader Service Card

TORCH. the Model R Arcair, for metal removal may be used with standard or jointed electrodes. It is available in three sizes: R-6 for ¾-in. electrodes, R-5 for ¾-in., R-4 for ½-in.—Arcair.

Circle 351 on Reader Service Card

CENTRIFUGAL PUMP, the 2-in. Aquamaster, is driven by a 3-hp Briggs and Stratton air-cooled engine. The light-weight, portable unit is designed for simple assembly.—Universal.

Circle 352 on Reader Service Card



30,000 FEET OF BETHANIZED BRIDGE STRAND SUPPORTS 4-ACRE ROOF AT IDLEWILD



Architects and Engineers: Tippetts-Abbett-McCarthy-Stratton; Associate Architects: Ives, Turano and Gardner; General Contractor: Turner Construction Co.; Steel fabricator: Lehigh Structural Steel Co.; Steel erector: Lehigh Construction Co.

The new jet terminal for Pan American World Airways at New York's Idlewild Airport is topped by a 4-acre elliptical canopy roof. The long overhang of this cantilevered roof provides shelter to jet planes as they load and unload around the periphery of the building.

The canopy roof is framed with 32 tapered steel beams. These rest on columns near the midpoint, then soar free for an additional 114 ft. Each radial beam is supported by

six 170-ft lengths of Bethlehem 2½-in.-diam bridge strand, made up into assemblies with anchor sockets at either end. The outer wires of the 1 x 147 strand have the bethanized "B" coating of electrolytically applied zinc, for extra protection against corrosion.

The six strands have a total strength per beam of 2,256 tons. The modulus of elasticity is 24,000,000 psi. With the strand tensioned, it exerts an uplift and prestress to the

steel beams. The eccentric force exerted reduces bending stresses effected by the long cantilever.

Bethlehem Strand provides maximum strength per unit of weight and diameter. The bethanized coating is supplied in various coating weights, to meet varying requirements for corrosion-resistance. For full details, call the nearest Bethlehem sales office.

There's a distributor of Bethlehem Rope near you, supplied by our nationwide network of wire rope mill depots

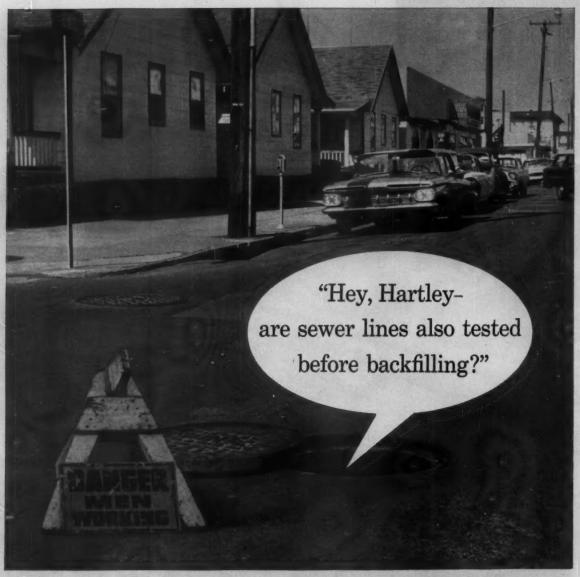
Bethlehem Steel Company, Bethlehem, Pa. Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



for strength ... economy





Yes! More and more specifications are calling for leakage (exfiltration) tests. Therefore, contractors have to be prepared for them.

When a line has to be tested before backfilling, contractors will usually look to Transite®, the white sewer pipe. You see, many have found it economically unsound to challenge a leakage "spec" with any other joint than a Ring-Tite® one. And, no wonder! This exclusive Transite joint is precision-machined instead of molded.

There have been times, and all too frequently, when materials other than Transite have virtually ruined contractors' job costs because of the time it has taken to condition a non-Transite line to eventually pass a leakage test. Incidentally, Johns-Manville is so sure of their Ring-Tite Joint, they don't consider a specification of 100 gallons/inch diameter/ mile/day a tough one to meet at all.

Johns-Manville's movie-"Pipelines To Health"-tells why a Transite line is a sound investment today and for the future. It's available along with facts and data to support their claim that "Transite is designed with sewer service in mind." Write to Johns-Manville, Box 14, CM-5, New York 16, N. Y. In Canada: Port Credit, Ont. Cable address: Johnmanvil.





st water goes in . . . stays in!



Circle 208 on Reader Service Card



"GJ-BOSS"
AIR HAMMER COUPLING



The washerless coupling for all heavy-duty air hose connections to hand drills, wagon drills, drifters, jumbos. Famous for strength, durability and efficiency. Quickly connected and disconnected, with no lost or worn-out washers to replace. Compact and Heavy Types.

"BOSS" Air Hammer Coupling—same as above except Washer Type.

For lighter services—"GJ-Dixon" and "Dixon" Air Hammer Couplings.

"BOSS" Self-Honing AIR VALVES

Used for the efficient control of air on compressors, manifolds, headers, sump pumps, etc. Strong, durable, compact. Self-adjusting, quick-opening, full flow. Male or female I.P.T.



Bronze plug automatically hones to perfect seal against harder

Stocked by Manufacturers and Distributors of Industrial Rubber Products

DIXON
Valve & Coupling Co.

Circle 256 on Reader Service Card MAY, 1961

NEW PRODUCT BRIEFS ...

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.

RADIO SET for low-band frequencies operates from 6-v dc, 12-v dc, and 115-v ac. The 7N20/TVR Aerotron can be used as either a mobile or fixed station. Price: \$395. — Aeronautical Electronics.

Circle 353 on Reader Service Card

PLASTIC-LAMINATED BURLAP for outdoor storage is water resistant, tear and puncture proof. The Burlene cover has no stitching and is offered in flat or pre-formed construction.—Bemis.

Circle 354 on Reader Service Card

STAPLE GUN permits automatic nailing on thick materials. The LC Spotstapler drives Chisel DC staples, up to 2-in. long, and increases pull-out strength as the legs fishhook.—Spotnails.

Circle 355 on Reader Service Card

welder, stud welder, tack welder, button welder, hole burner, and riveter. The Six Shooter connects to welding machine power supply. Price: \$59.—Beeco.

Circle 356 on Reader Service Card

welding Holder for tungsten inert gas process is air-cooled with 160-amp ac or de continuous duty. The Airco H16-A Heliweld Holder is available with 1¼-in. or 1%-in.-long nozzles.—Air Reduction.

Circle 357 on Reader Service Card

EXTENDIBLE TRAILER with 44-in.-high drop deck is available with spread, sliding, or triple-axle tandem rear suspensions. Model HFT25X extends from 35 ft in closed position to 55 ft when opened.—Rogers Bros.

Circle 358 on Reader Service Card

TRANSCEIVER, the Osborne 300, has nine-transistor circuit and operates on any one of 23 channels. The unit measures 1%x6x7 in., operates on 115-v ac, costs \$139.50.—Osborne.

Circle 359 on Reader Service Card

DIESEL ENGINE, 290 hp, is now available as optional equipment on the Michigan Model 280 tractor-dozer. The GM 8V-71 features a two-stroke engine cycle.

—Clark Equipment.

Circle 360 on Reader Service Card



Preliminary and final cutoffs...one material, two materials or more. DETECTO automatic cutoffs provide fast, accurate weight control.

Write for specifications to:

DETECTO SCALES, INC.
Dept. CM-10 540 Park Ave., Bklyn. 5, N.Y.
Circle 209 on Reader Service Card



Satisfaction is guaranteed when you purchase EFCO Lifetime Steel Forms for your concrete forming needs.

NEW CATALOG

Describes and illustrates EFCO Steel Forms and accessories with examples of many uses. Send coupon for your copy.



MAIL TODAY

Economy Forms Corp. Box 128-N, H. P. Station Des Maines, Iowa

Please send new catalog on EFCO Steel Forms, and address of nearest sales office (there are 29 coast to coast).

Firm name

Address

........

Circle 257 on Reader Service Card



make it last - make it LESCHEN

The man who uses wire rope knows that Leschen quality and service give best results—that Leschen Wire Rope keeps production on the move—that Leschen will make sure it's the right rope for his need. • To be safe and sure call your Leschen

distributor for expert advice on your wire rope needs. For further details and literature, write Leschen Wire Rope Division, 2727 Hamilton Avenue, St. Louis 12, Mo.



PORTER

LESCHEN WIRE ROPE DIVISION H. K. PORTER COMPANY INC.

Porter serves industry with steel, rubber and friction products, asbestos textiles, high voltage electrical equipment, electrical wire and cable, wiring systems, motors, fans, blowers, specialty alloys, paints, refractories, tools, forgings and pipe fittings, roll formings and stampings, wire rope and strand.

Circle 210 on Reader Service Card

New Publications

These catalogs and bulletins from manufacturers contain useful information about construction equipment and materials. To obtain a copy of the items you want, circle the appropriate numbers on the READER SERVICE CARD just inside the back cover of this month's issue.

FORMS & ACCESSORIES—The latest Universal forms, form ties, accessories and highway products are depicted in a 56-p. catalog.—Universal Form Clamp Co., 1238 N. Kostner Ave., Chicago 51, Ill.

Circle 361 on Reader Service Card

BORING UNIT—The Ka-Mo A-20, a lightweight air-powered boring unit capable of augering 2¼ to 16-in. dia, is the subject of a bulletin. — Kwik-Mix Co., Port Washington, Wis.

Circle 362 on Reader Service Card

AIR TOOLS—Catalog No. 46, 48 p., carries the complete line-up of contractor and mining air tools manufactured by Thor. Diagrams detail tool features and complete specs are given on each model shown in the catalog.—Thor Power Tool Co., 175 N. State St., Advertising Dept., Aurora, Ill.

Circle 363 on Reader Service Card

GRADING — A 12-p. brochure entitled "Production Grading" features various applications of motor graders and their attachments.—Caterpillar Tractor Co., Peoria, Ill.

Circle 364 on Reader Service Card

NAILING TOOLS—A 16-p. catalog illustrates Spotnails' complete line of staples, nails, pins, ang guns.—Spotnails, Inc., Rolling Meadows, Ill.

Circle 365 on Reader Service Card

LIFT TRUCKS—The A-C line of lift trucks in the 2,000 to 10,000-lb capacity range is described in a 16-p. catalog, BU-660.—Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Circle 366 on Reader Service Card

CALCIUM CHLORIDE — Five new publications deal with calcium chloride: "Maintenance Tips for Unpaved Roads," 36 p.; "A Program for Progressive Improvement of Secondary Roads," 16 p.; "Calcium Chloride — Handling, Storing, and Applying," 42 p., "Calcium Chloride for Stabiliza-

tion of Bases and Wearing Courses," Manual SM-1; and The Importance of Timely Spring Maintenance."—Calcium Chloride Institute, 909 Ring Building, Washington 6, D.C.

Circle 367 on Reader Service Card

CONVEYORS—A 56-p. brochure presents Conveyor Systems' line. The brochure also outlines the engineering services offered by the company and the parts and repair facilities maintained for servicing installations.—Conveyor Systems, Inc., 6451 Main Street, Morton Grove. Ill.

Circle 368 on Reader Service Card

CRANES—Three technical portfolios cover the capabilities of P&H Models 525, 535, and 550 crawler cranes. There is a total of 52 capacity charts, 13 general dimension drawings, three crane range diagrams, six cutaway photos, and 16 photos of the units at work.—Construction and Mining Div., Harnischfeger Corp., 4445 W. National Ave., Milwaukee 46, Wis.

Circle 369 on Reader Service Card

ARC WELDING — Information concerning their full line of arc welding products is contained in Lincoln's bulletin 7000.7 entitled "Weldirectory of Arc Welding Electrodes, Equipment, and Supplies." The 38-p. bulletin presents data on AWS electrode classification and discusses correct electrode selection for every type of welding application. The Lincoln Electric Co., Cleveland 17, Ohio.

Circle 370 on Reader Service Card

ASPHALT DRYERS — A 16-p. booklet, "Dryer Principles," describes Barber-Greene's two-year test program. It illustrates the test layout and how various factors were controlled and measured. The main portion of the booklet is devoted to the conclusions reached from the test data.

—Barber-Greene Co., Aurora, Ill.

. Circle 371 on Reader Service Card

COMPRESSORS — The latest models of Davey 600-cfm rotary compressors are described in a bulletin. It contains specs for 4-wheel trailer and skid-mounted machines. Tools that can be operated by 600-cfm compressors are listed in a table. — Davey Compressor Co., Kent, Ohio.

Circle 372 on Reader Service Card

ROCK BITS—A 14-p. catalog details Chicago Pneumatic's rotary



The KOLMAN Model 101 Conveyor-Screen Plant is available with a wide choice of feeding accessories which facilitate charging with most any type of equipment. The Dozer Trap and Feeder-Trap are ideal accessories for push loading operations with a bulldozer. The Casting Hopper and Feeder-Hopper are designed especially for top loading with various charging units, from front end loaders and trucks to shovels and draglines.

Complete flexibility is now also available with the Conversion Hopper for Dozer Traps and Feeder-Traps, making both top loading and push loading practical with the same plant.

Further adaptability to any job requirement is achieved through a choice of single, double, or triple deck Screens on the Model 101. Thus an unusually low equipment investment makes possible simultaneous loading and screening while scalping oversize or rejecting fines with a single deck, both scapling and rejecting at once with a double deck or grading and

This Model 101 with Feeder-Trap, Wing Walls and Single Dock Screen is equipped with Conversion Hopper for top loading with dragline. Hopper is easily removed from Trap for high speed dozer charging.

classifying with the triple deck Vibrating Screen.

Yes, KOLMAN has the answer for low cost, high production screening and loading. Complete selection of sizes from 18" to 48" belt widths, lengths up to 60', and screens to 5' x 12' on Conveyor-Screen Plants. Portable 101 Conveyors also available up to 80' lengths and loaders up to 60" belt widths. Write for literature and prices.

KOLMAN MANUFACTURING COMPANY

5900 West 12th Street Sioux Falls, South Dakota

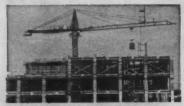
or see your nearest Kolman Dealer

Circle 211 on Reader Service Card



Circle 258 on Reader Service Card

HOW "CONCRETOR" LINDEN CLIMBING-CRANES REVERSE RISING CONSTRUCTION COSTS



Peter Kiewit Sons utilizes "CONCRETOR" CLIMBING-CRANE in effecting important savings of time, labar, money on own office building in Omaha, Nebraska.

The "CONCRETOR" CLIMBING-CRANE goes up with the building while work is in progress...2-3 floors at a time...the sky's the limit. Climbs by its own hoisting winch on floors or inside elevator shafts.

"CONCRETOR" CLIMBING-CRANES efficiently place loads "on a dime"...up to 100 foot radius due to the 360 degree swing of its 100 foot jib. They eliminate the need for expensive rehandling of materials over unnecessary ramps and runways, substantially lowering operating costs. Recommended for all types of construction including industrial, apartment and office buildings, silos, water towers, bridges and viaducts.

"CONCRETOR" CLIMBING-CRANES cost about half of what you'd expect to pay for earth-bound cranes of similar capacity. With ordinary use, the cost can be amortized over a period of about 2 years.

CHOICE OF 4
MODELS —
RENTAL/
PURCHASE
PLANS.
Delivered any
where in U. S.
Factory-trained
service
engineers
available.



For Literature Address Dept. CM-5

Crane is remote-controlled by one man from working deck with 31/2 ib. electronic panel.

B. M. HEEDE, INC.
30-01 37th Avenue, Long Island City 1, N.Y.
B. M. HEEDE CALLIFORNIA, INC.
951 N. Unden Ave., South San Francisco, California
Circle 212 on Reader Service Card

NEW PUBLICATIONS ...

For more information, circle the key number found at the end of each item on the READER SERVICE CARD, which is just inside the back cover.

three-cone air-blast bits, piloted reamers, drill collars, and related drilling equipment. Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N.Y.

Circle 373 on Reader Service Card

TRUCK CRANE—A 12-p. portfolio features the P&H Model 890-TC, the world's largest truck crane.—Construction and Mining Div., Harnischfeger Corp., 4445 W. National Ave., Milwaukee 46, Wis.

Circle 374 on Reader Service Card

POWER TOOLS—A 68-p. catalog presents information on over 100 Skil power tools. Included are over 200 illustrations, information on product features and applications, and complete specs.—Skil Corp., 5033 Elston Ave., Chicago 30, Ill.

Circle 375 on Reader Service Card

CEMENT—The 1960 edition of the "Compilation of ASTM Standards on Cement," 288 p., contains eight specifications, 26 methods of test, and several definitions. Revisions have been made in four specifications and eight methods retained from the previous edition. Price: \$4.00. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

Circle 376 on Reader Service Card

STEEL BRIDGES—"15 Ways to Reduce the Cost of Short Span Steel Bridges" stresses simplified details of fixed and expansion bearings, diaphragms and drainage structures, and suggests design simplifications. — American Institute of Steel Construction, 101 Park Ave., New York 17, N.Y.

Circle 377 on Reader Service Card

ELECTRODES—A series of reference data charts pertain to all AMPCO bronze welding electrodes, bare filler rods, and wire. Included in the charts is information on comparative bronze electrodes, melting rates and efficiencies, electrode and filler rod specs, and recommended welding currents for various welding procedures.—Ampco Metal, Inc., P.O. Box 2004, Milwaukee 1, Wis.

Circle 378 on Reader Service Card

CRANE-EXCAVATORS—"Make More Dollars Move" features the ¾-yd 305 and 1-yd 405 crawler machines.—Koehring Div., Koehring Co., 3026 W. Concordia Ave., Milwaukee 16, Wis.

Circle 379 on Reader Service Card

TRACTORS, LOADERS — "You Get More Profitable Production with Eimco," a 12-p. booklet, describes the Eimco line of diesel-powered crawler-tractors and loaders.—Eimco Corp., P.O. Box 300, Salt Lake City 10, Utah.

Circle 380 on Reader Service Card

DIESEL ENGINES—Bulletin No. 125 covers applications of the Superior Model 40 diesel engines in shovels and draglines.—Customer Service Dept., White Diesel Engine Div., Springfield, Ohio.

Circle 381 on Reader Service Card

TRACTOR EQUIPMENT — Features and specs on A-C crawler and wheel tractor equipment are available in a folder, UT-142. Each model utility tractor is pictured with the attachments engineered to it. — Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Circle 382 on Reader Service Card



NEW PRODUCTION RECORDS SET

ONE MILE STATE UNDERGROUND

"With the kind of production we're getting, we are sold on Trojan," says S. A. Miller, general superintendent of Peerless Quarries. After comparing other machines, Peerless picked a Trojan 304 with exclusive curved-nose rock bucket to load blast-crushed limestone deep underground. Low mine ceilings presented a clearance problem in loading high, side-boarded trucks -Trojan's greater loading reach solved it. Mr. Miller further states, "Our Trojan 304, with its special rock bucket gets penetration under load. It is not necessary to crowd hard enough to spin the wheels. Most other loaders have to go into the pile much faster to fill the bucket - not Trojan. This fact alone has resulted in our having spent only eight dollars for maintenance in better than six months operation. Loading an average 1500 tons of limestone daily, we've eliminated an hour overtime for each operator by buying Trojan." Trojan's easy loading features mean high production. Call your Trojan distributor for a date-today! He'll show you Trojan's performance data that proves lower costs, longer life and trouble free operation with a demonstration on your job.

Trojan 304, with exclusive curved-nose rock bucket, speeds loading operations for Peerless Quarries, Inc.
Kansas City, Kansas



44-32

TROJAN°
TRACTOR SHOVELS

YALE & TOWNE

THE YALE & TOWNE MANUFACTURING COMPANY TROJAN DIVISION • BATAVIA, NEW YORK

Circle 213 on Reader Service Card



For 50 years Richmond has applied its hard earned know-how and experience to developing the most expanded and versatile line of engineered tying devices, anchorages, inserts and accessories for concrete construction. Richmond's complete line of dependable, laboratory tested form-tys, hardware, building products and accessories for light concrete construction provide you with a reliable, single source which will save you time and money safely.

Shown here are some of Richmond's typical items for concrete building work, For complete information about the full line send for FREE literature... and, if you have any specific concreting problem let our Technical Department help you. Write to:



MAIN OFFICE: 816-836 LIBERTY AVE., BROOKLYN B. N. Y. SALES OFFICES, PLANTS & WAREHOUSES: FT. WORTH, TEX. ATLANTA, GA. - LAUREL, MD. - ST. JOSEPH, MO. - WALTHAM, MASS. IN CANADA: ACROW-RICHMOND, ORANGE VILLE, ONT.

Advertisers' Literature

Listed below is free material offered in this issue's advertisements received up to Apr. 15. To get the items you want, circle appropriate numbers on the SERVICE CARD inside the back cover.

PRIME MOVER — A 16-p. bulletin covers the Speedpull, which is powered by a 276-hp engine.—LeTourneau-Westinghouse.

Circle 450 on Reader Service Card

HYDRAULIC DRIVE — Literature highlights the CRT-5630 Torq-matic Drive for heavy equipment. —Allison Div. of General Motors.

Circle 451 on Reader Service Card

WIRE ROPE—Bulletins are available concerning 7-Flex, slings, corrosion-resisting rope, and rope assemblies.—Macwhyte

Circle 452 on Reader Service Card

Detonating Fuse — "Primacord Detonating Fuse . . . What It Is . . . How to Use It" gives tips for safe blasting.—Ensign-Bickford. Circle 453 on Reader Service Card

TRAILERS — A folder presents Fruehauf's line, including hoisttype dumps, platform trailers, and insulated tanks.—Fruehauf. Circle 454 on Reader Service Card

plays the complete line of GM diesel engines.—Detroit Diesel Engine Div., General Motors.

Circle 455 on Reader Service Card

coll TIE—Bulletin CTS-1, 6 p., shows how the Cone-Fast Coil Tie cuts concrete forming time.—Superior Concrete Accessories.

Circle 456 on Reader Service Card

CRUSHING-SCREENING—The Telesmith portable plant that produces up to 300 tph is illustrated in Bulletin 276.—Smith Engr.

Circle 457 on Reader Service Card

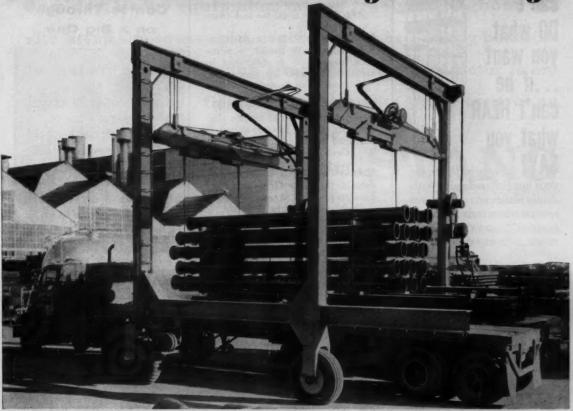
ASPHALT DRYERS—A 16-p. bulletin explains dryers, and another bulletin features the 54-model line of Dryerpacs.—Barber-Greene.

Circle 458 on Reader Service Card

ROLLER CHAIN—Catalog No. 760 presents the line of Diamond roller chains for construction equipment.—Diamond Chain.

Circle 459 on Reader Service Card

Travelift...the versatile <u>new</u> way to materials handling economy



From Maine to California, from Florida to Minnesota, Travelift is on the move in Marinas, Prestressing Plants, Piggy Backing and Container Handling. Every day Travelift is saving someone time and money in a new way. It can do it for you, too.

Travelift gives you the ultimate in versatility.

- It can be self-propelled, truck pulled or operate in a fixed position.
- It handles loads from 3 to 50 tons.
- It comes equipped with single or multiple lifting points.

- Travelifts can traverse and even pinpoint a load to spot it on a dime, gently.
- Once more, every operation is hydraulically controlled by one man from a full view platform with every control under his thumb for complete command.

Take a look at your present materials handling equipment. Are you getting this all around versatility or are you about to write for full details on this *new* way to materials handling economy?

Over 17 models to choose from — at a lower cost than you think. Most models cost less than \$1,000 per ton of lifting capacity... at no sacrifice in quality.



Circle 215 on Reader Service Card

can't DO what you want can't HEAR what you

No need to scream your head off uselessly! With Audio Hailer you can project spoken commands . . . like a harpoon . . . over a half-mile range . . . in any direction!

Yet you are not "tied down" to any external power source. New "TP" (transistorpowered) Hailer is a com-



your voice . . . your time . . . your r! Mail coupon for full description

| P.O. Box 192, Po | ort Washington 39, N. Y. |
|-----------------------|---------------------------|
| Rush Audio "TP" | Nailer catalog and prices |
| Name | Title |
| Company | |
| St. & No. | A CONTRACTOR |
| City or Town | |
| Zone (if any) Stat | |

Circle 216 on Reader Service Card

AD LITERATURE . . .

Listed below is free material offered in this issue's advertisements received up to Apr. 15. To get the items you want, circle appropriate numbers on the SERVICE CARD inside the back cover.

MEGAPHONE - The transistorpowered, 5%-lb Hailer, a portable megaphone, is described in a catalog.-Audio Equipment Co. Circle 460 on Reader Service Card

TRACTOR-Hough's D-120 Paydozer, a rubber-tired tractor that converts into a tractor-shovel is featured in literature.-Hough.

Circle 461 on Reader Service Card

FORMING ACCESSORIES—A catalog details the Sure-Grip array of accessories for concrete forming. -Dayton Sure-Grip & Shore.

Circle 462 on Reader Service Card

ASPHALT PLANTS-Catalogs describe White's five models of asphalt plants ranging from 6 to 60 tons.—White Mfg. Co.
Circle 463 on Reader Service Card

TRASH PUMPS-Catalog PT-1 describes Posijector 3-in. and 4-in. centrifugal pumps with 20,000 and 46,000 gph capacities.—Jaeger.

Circle 464 on Reader Service Card

COMPRESSORS—Catalog JC-0 details Jaeger's Rotary compressors, ranging in capacity from 75 to 900 cfm.-Jaeger Machine Co.

Circle 465 on Reader Service Card

CONVEYOR-SCREEN PLANTS-Literature explains plants with selection of belt widths up to 48 in., lengths to 60 ft.—Kolman Mfg.

Circle 466 on Reader Service Card

STEEL FORMS-A new catalog covers EFCO steel forms and accessories and includes examples of applications.—Economy.

Circle 467 on Reader Service Card

STEEL CORD TIRES-A booklet explains how tires with steel wire cord run 20 deg cooler, increase sidewall strength.—Bekaert.

Circle 468 on Reader Service Card

CASTINGS-Neenah's line of gray and ductile iron construction castings are depicted in a 168-p. catalog.-Neenah Foundry. Circle 469 on Reader Service Card

CONCRETING-Catalog GA30 describes Model G-4A, a pneumatic machine for gunning, conveying, grouting.-True Gun-All.

Circle 470 on Reader Service Card

Again...

SIMPLEX-WACO

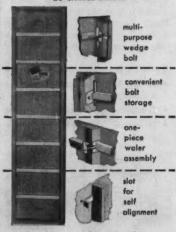
Comes Through on a Big One



adaptability and flexibility of Simplex-Waco Forms proved on giant shopping center

- Simplex-Waco Forms went up with ease in forming 32' battered wall and counterforts at suburban Minneapolis' Southdale Shopping Center.
- Robertson Q. panels nailed to Simplex-Waco panels to produce architectural finish in other parts of project.
- Forms were used both vertically and horizontally . . . proving Simplex-Waco flexibility! Over 26,000 sq. ft. of forms used on this project.
- Forms available on sales or rental/ purchase plan.

DISTRIBUTORSHIPS OPEN IN CHOICE AREAS



Send Your Plans for Free Layout and Cost Estimate



SIMPLEX INDUSTRIAL FORMS, INC.

5629 Industrial Avenue

Rockford (Loves Park) Illinois Circle 254 on Reader Service Card

A Stang dewatering system is keeping the excavation for this dam dry. Heavy equipment moves freely throughout the site, steep slopes stay put, concrete is placed on dry bedrock. In spite of widely varying river levels, the contractor is enjoying economical, flexible and complete water control on this project. Wherever the project, whatever your problem-if it's water STANG handling, you can count on Stang. CORPORATION · 8221 Atlantic Avenue · Sell, California handling, you can count on Stang.

ENGINEERS AND MANUFACTURERS OF DEWATERING EQUIPMENT, WELLPOINT AND PUMPING SYSTEMS . DEWATERING PLANNING . EQUIPMENT . SERVICE



HELLER FINANCING PREVENTS HEADACHES



It's just as important to avoid loss as to make profits. Heller has wide sources of credit information. Often, we are able to steer clients off risks they shouldn't take, or okay risks they'd otherwise pass up. That's one element of Heller financing service that's worth much and costs you nothing extra.

Heller Means QUICK—Heller service isn't impersonal, cut-and-dried. Heller men know contracting from both the distributor and contractor

end, and Heller men aren't tied up in red tape. They make their own decisions—you get the fast action you want.

On the spot, they'll work out an arrangement that's tax-wise, practical, with profit for you—equal monthly pay with low-pay option during off season—pay-as-you-earn, with payments scaled to depreciation and reduced annually—or whatever arrangement is best for your situation.

You Go Faster and Farther With Heller Dollars



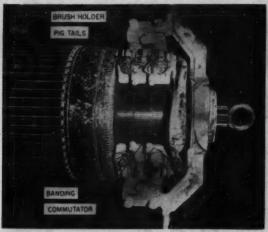
-CM&E-5

Walter E. Heller & Company

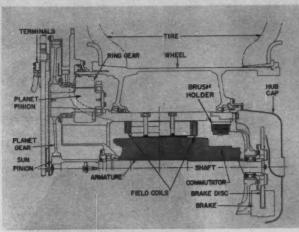
105 W. Adams Street, Chicago 90, Illinois • 342 Madison Ave., N.Y. 17
Fulton National Bank Building, Atlanta 3, Georgia
Walter E. Heller & Company of California, 849 S. Broadway, Los Angeles 14
Walter E. Heller & Company of New England, 31 Milk Street, Boston, 9, Mass.

Circle 218 on Reader Service Card

← Circle 217 on Reader Service Card



PARTS ARE SIMPLE—Regular inspection of brushes, commutator and insulation will go a long way toward preventing downtime.



SO IS PRINCIPLE—Diesel engine of rig powers generator that supplies do current to electric motor in the hub of each wheel.

Electric Drive Wheels Are Easy to Service

INTRODUCED only a few years ago, electric wheels have proved to be a practical way to drive scrapers, dump trucks, rollers, land-clearing equipment and other off-the-road rigs.

In 1959, the Locomotive and Car Equipment Department of General Electric Co. developed an electric wheel for earthmoving equipment. It has been installed on a line of dump trucks, and it can be used to repower existing equipment. R. G. LeTourneau has used its own electric-drive principle on giant scrapers and other big rigs, and several other manufacturers are experimenting with the system.

The principle of the electric wheel is simplicity itself. A diesel engine powers a generator that feeds dc current to motors built into each wheel of a unit. Installed in the hub of each wheel, an electric motor provides independent power to match tractive effort of the wheel. When the current in the motor is reversed, it acts as a brake.

Many manufacturers, including General Electric, are convinced that there is a bright future for the electric-drive principle in the construction industry. At the same time, many contractors believe that electric wheels will offer complicated and unusual maintenance problems. Not so, says General Electric.

According to GE engineers, maintenance of electric-drive wheels is as simple as the principle itself. It doesn't differ materially from that required for any electric motor. Inspection and servicing centers on three main parts: brushes, commutator and insulation.

The brushes make sliding contact with the commutator, which passes the electric current into and out of the armature. Normally, the brushes ride the commutator surface smoothly and without sparking. When they don't, either because of poor brush contact or commutator roughness, trouble develops.

Excessive sparking is the most common trouble encountered with the brushes. It may eventually cause flashover. This happens when the arc bridges the gap between two brush holders. It can cause serious damage to the commutator, brush holders, field coils and connections.

Excessive sparking has two main causes. The brushes may not be held firmly against the commutator surface, or the brush material may be of the wrong grade for service conditions.

To prevent sparking, inspect brushes frequently for freedom of movement and for length. Lift the spring arm and wiggle the pigtail to check that the brush moves freely in the holder.

Check brush length to make sure that brushes have not worn so far that springs contact some part of the holders. Replace brushes if there is any doubt that they are long enough to last until the next inspection. When changing brushes be sure to use the proper grade specified by the manufacturer. Also check brush pigtails for frayed or worn spots and tighten pigtail connections.

Brush holders keep the brushes in proper position relative to the commutator and the machine frame, and allow the brushes to advance freely as they wear. They also carry current to and from the brushes, and insulate the brushes from the frame.

Brush holders should be clamped tight and have the clearance above the commutator spe-

continued on page 222



1925 Mack AB Model still handles its share of the workload.

Three-axle dump trailer hauled by Mack B Model delivers a load of pit sand on construction site at Smiths Creek, Mich. Mile-long run from sand pit to job is made in fastest legal time, thanks to Mack truck maneuverability.





Lumber load is transferred directly from rail car to trailer powered by B Model Mack for delivery to building supply yard of Foster Builders Supply, Port Huron, Mich.



Storm sewer construction site finds six-wheel Mack discharging its load of ready-mix concrete. Foster operates eight such Macks in its mixer fleet.

because they're built by Mack

You've heard the expression often . . . Macks are the one truck you can't kill. While Macks don't live forever, they do live far longer, earn far more on construction jobs.

Foster Builders Supply Company of Port Huron, Mich., and its subsidiary The Brownie Corporation are good examples. "We've used Macks since the early '20s, as well as other makes, and we're sold on the performance, dependability and economy of Macks," says President H. C. "Brownie" Foster.

"Whether they're hauling loads of

lumber at 32,000 lbs. GCW . . . 121,000-lb. GCW's in aggregate trains . . . or six-yard loads of ready-mix concrete . . . our Mack trucks have been outstanding performers. Even our 1925 Mack AB Model still handles its share of the workload."

Foster Builders Supply has learned over the years what more and more construction operators are finding out; that Balanced Design, Mack's practice of building far more of its vital components than any other heavy-duty truck maker, pays off in a matchless vehicle.

Construction or building supply, for

whatever job you have in mind, there's a heavy-duty Mack made to master it. Contact your Mack branch or distributor for full details. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ontario.

MACK
FIRST NAME FOR TRUCKS

The Brownie Corporation, owned by H. C. "Brownie" Foster, H. C. Foster, Jr., and Louis H. Foster, operates popular B Model Macks as aggregate hauling trains with a GCW of 121,000 lbs. and as dumpers shown below.



MAINTENANCE SHOP... continued from page 219

by the manufacturer. Springs should be checked frequently for tension. Also inspect shunts that carry current around the springs for loose connections or fraying. Broken or loose shunts force current through the springs, overheating and annealing them. This reduces spring tension, causing sparking.

Inspect the commutator, which is one of the most important parts of any motor, at regular intervals



DIRT IS WORST ENEMY-Wipe away oily dirt (arrow) that clings to insulated creepage surfaces to stop short circuits.

STEEL CORD TIRES CURB DOWNTIME

Records from construction, logging and drilling firms prove off-the-road steel cord tires reduce downtime and cut operating costs-no matter how heavy the loads or how rugged the job. They provide many more hours of trouble-free service than conventional textile tires.

With thinner sidewalls, they run 20°F cooler. Yet sidewalls are up to 10 times stronger-for added resistance to blowouts, impact breaks, cutting and abrasions. They're fortified with 4 plies of 400,000 psi high tensile carbon steel wire from bead to bead. Steel cord tires have a double extra-ply rating - solid proof of strength and high load capacity.

New, technically improved steel cord tires make seldom-needed

Increase service hours and number of retreads by specifying tires made with Bekaert Steel Wire Cord.

| W | rite for free data booklet | |
|-----------|-------------------------------|------|
| | END ME A COPY OF YOUR BOOKLET | |
| Bekaert (| Steel Wire Corporation | m |
| NAME | COMPANY | |
| ADDRESS | | |
| CITY | ZONE STATE | 1970 |

BEKAERT STEEL CORD, ZWEVEGEM, BELGIUM - Among Europe's Foremost Steel Wire Producers Since 1880 ← Circle 221 on Reader Service Card A Circle 222 on Reader Service Card

for damage to the surface. Any roughness or pitting may cause sparking and overheating. A hand stone curved to fit the commutator will remove minor abrasions without disassembly of the machine. The hand stone should be large enough to cover at least 30 deg of the commutator surface.

Discolorations or patterns on the commutator bars may indicate a serious abnormality some-where else in the machine. While they are not necessarily harmful. it is best to discuss them with the manufacturer's service engineer.

High or loose commutator bars are a serious problem. They are caused by stalling; when the motor is held at stand-still with the power on it draws a very heavy current. This overheats the commutator bars under the brushes and may damage the insulation between the bars. Eventually, the commutator will develop high and low spots, chipping brush edges and making brushes bounce and jump. Careful and frequent stoning will keep the motor in service, but the trouble will get worse rapidly and the only real remedy is a new commutator.

Insulation encasing cables and conductors require frequent inspection to make sure current is not escaping. The type and amount of insulation must be carefully selected to be adequate for the voltage carried and still allow heat to escape. It is unlikely that normal voltage will break down insulation. However, careless use of tools, overloading, excessive water or oil, or the use of strong cleaning solutions can damage it. Reasonably careful treatment will keep insulation in good condition.

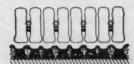
continued on page 225

How two contractors cut compaction fleets in half

Seaman Duo-Pactors do the work of several single purpose compactors

When a prominent Midwestern contractor* won a contract for building a section of Interstate Highway, compaction became one of his most pressing problems. Density specifications of 95% modified AASHO had to be met on 1,000,000 cu yd of fill, and 100% on 21,000 cu yd of granular base. It looked like compaction was going to be a major cost factor.

Interested in holding down costs and increasing scraper productivity, the contractor tried and purchased a Seaman Duo-Pactor. Here was a



The closely spaced tires form densely compacted tracks with minimum material displacement.



Lowering the steel roll chokes ridged material down between the tire tracks, unifying density.



machine that combined the advantages of high-pressure pneumatic tires for deep compaction, with a heavy steel roll to press down the ridges and prevent material displacement, thus assuring uniform density across the entire rolling width.

Reports the contractor: "Using the Duo-Pactor reduced our compaction equipment requirements from three crawler tractors with sheepsfoot rollers to one. This represented a big saving in investment while increasing productivity.

"We employed the method of thin lifts, using the one sheepsfoot when required for pulverization. Usually two high speed passes with the Duo-Pactor gave us the compaction required. This permitted us to keep our production equipment moving at all times.

"The Duo-Pactor served more than one purpose: It handled compaction on the grading operations, placement of surfacing on the approach roads, and compaction of the granular lift under the slab. We were able to compact the sand lift quickly where others were using slow-moving plate-type vibratory equipment."

Birdsall reports similar savings

The experience related above is paralleled by that of R. R. Birdsall & Sons Company, Racine, Wis. Secretary-Treasurer R. R. Birdsall, III, reports:

"We bought the Duo-Pactor to do rolling and compacting on granular subgrade and subbase on our concrete paving contracts. We get our density easily and quickly, varying our ballast to meet the various subgrade conditions as they are encountered.

"We often have specifications requiring the rolling of the subgrade and granular base lift with both rubber and steel. With the Duo-Pactor, we do this with one operator and one machine rather than two operators and two machines, thus reducing our costs.

"The portability of the Duo-Pactor is also a big factor with us. It can move from job to job under its own power, cutting moving costs, and getting the machine to the place where it is needed quickly."

*A certified contractor report from Seaman Corporation files

Please send me Specification Sheets as checked below:

| | 7-20-ton Duo-Pactor | Pull-type Vibratory Impactor |
|--|-------------------------------------|------------------------------|
| SEAMAN-GUNNISON DIVISION OF | 9-27-ton Duo-Pactor | Self-Propelled Impactor |
| SEAMAN CORP. | ☐ 10-30-ton Self-dumping Duo-Pactor | Utility 6-yd Scraper |
| MILWAUKE WISC - U.S.A | 8-20-ton Tri-Pactor | Bituminous Distributors |
| P.O. Box 3025, Milwaukee 18, Wis. Tel.: SUnset 1-8900 | ☐ 10-27-ton Tri-Pactor | Street Flushers |
| _ | Circle 223 on Reader Service Card | |

In Heavy Construction Equipment, too,

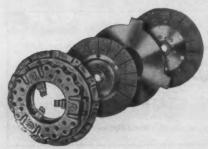
the Trend is to LIPE CLUTCHES



Cost-conscious construction men count profits in terms of actual operating costs. Replacement clutches are measured not only by initial price, but also by the frequency and cost of repair and maintenance. All these factors add up to the growing trend among heavy equipment contractors to specify LIPE replacement clutches in dumps, cranes, shovels, earthmovers and other heavy duty rolling stock.

Simplicity, direct drive, easy adjustment

and replacement-exchange make the Lipe DPB the choice of construction men for truck GVW applications of 19,000 pounds and up. Built with fade-resisting chromesilicon springs, and designed to shrug off shocks and dissipate friction-generated heat, the DPB stays in service longer, with lower costs for fuel, oil, brake relining and repair of all components in the power train. See your Lipe distributor soon. He'll show you why... the trend is to LIPE!



Lipe Heavy-Duty DPB Clutches are available in single and two-plate types; 12", 13", 14" and 15" sizes; with torque capacities from 300 to 1900 ft.-lbs.



Circle 224 on Reader Service Card

MAINTENANCE SHOP...

continued

Some current-carrying parts, such as commutators and brushes. cannot be covered with insulation. Insulation covering adjacent surfaces, together with the surrounding air, keeps the current in these parts from escaping. However, if the adjoining insulated surface becomes covered with dirt, the current can jump from speck to speck of dirt across the creepage surface and escape. In so doing, it forms tiny sparks that eventually burn a carbonized path across the creepage surface, resulting in a short circuit.

Ventilating air carries dirt into the machine and brush wear produces carbon dust, some of which settles on insulated creepage surfaces. If these surfaces are oily or wet, dirt will adhere to them readily. And moisture makes the dirt film conductive. so a damp machine is much more likely to fail than a dry one. In any case, dirt is the No. 1 enemy of the electric wheel.

Check insulation frequently to be sure it is clean. Dry dust can be blown off with air. Blow the air in the reverse direction from normal ventilating air flow in the machine. Also, empty dirt traps and filters frequently.

Dirt and scum that cannot be blown off should be wiped away until the creepage surface is bright and dry. In stubborn cases, a solvent such as trichlorethylene may be used with care. Do not soak the parts with solvent: wipe the dirt away, warns GE.

When painting field coils, first be sure that the insulation is clean. If it is not, leakage current will continue to flow in the carbonized dirt beneath the paint. The same precaution applies when touching up the varnish on commutator string bands.

Often, so-called electrical troubles are caused by mechanical defects. If motor bearings are running rough or there is unusual vibration in the gear train, brushes may bounce or the armature coils may be loosened. A loose armature coil can chafe insulation

Mechanical defects should be corrected as promptly as possible. Tighten loose parts, repack or replace damaged bearings, and check alignments. This will give maximum insurance against the development of related electrical difficulties.

and cause a ground.

SEARCHLIGHT SECTION

EMPLOYMENT:

OPPORTUNITIES

EQUIPMENT USED OR RESALE

DISPLAYED

BATES.

UNDISPLAYED

The advertising rate is \$21.75 per inch for Equipment & Business Opportunity advertising appearing on other than a centract basis. Contract rates quoted on request.

Employment Opportunities—\$37.00 per inch, subject to Agency commission.

An advertising limb is measured %" vertically on one column. 3 columns—36 inches—to a page.

\$2.10 per lime, minimum 3 lines. To figure advance payment count 5 average words as a line. Dis-count of 10% if full payment is made in advance for 4 consecutive insertions.

Positions Wanted undisplayed advertising rate is one-half of above rate payable in advance. Box Numbers—count as one line

Send New Advertisements and Inquiries to Classified Adv. Div. CONSTRUCTION METHODS & EQUIPMENT, P. O. Box 12, N. Y. 6, N. Y.

RUBBER PRODUCTS for IMMEDIATE DELIVERY



LOW PRICES. DEPENDABLE QUALITY FOR 40 YEARS

WHAT EVER YOUR RUBBER NEEDS ARE!!

AIR HOSE WATER HOSE SUCTION HOSE DISCHARGE HOSE STEAM HOSE PILE DRIVE HOSE

HYDRAULIC HOSE

OIL HOSE WELDING HOSE VACUUM HOSE SAND SUCTION HOSE DREDGE SLEEVES CONVEYOR BELTING

ELEVATOR BELTING 'V" BELTS

Write for complete catalogue

CARLYLE RUBBER CO., INC. 103-107 WARREN ST Digby 9-3810 NEW YORK, N. Y.

Circle 260 on Reader Service Card

EARTH DRILL

1956 Y-1 Buda on turntable, 10' stroke, 18" Auger, 6 Cyl. engine. \$1500.00. Also, 1959 Model Y-1 Buda, 66' stroke, 18" Auger, Wis-consin 4 Cyl. engine. \$1400.00. Beth in good condition. Phone: Argos, Indiana 892-5141. Ask for Mr. DeRaiter.

Circle 261 on Reader Service Card

"SEARCHLIGHT" **Can Help You!**

Hundreds of miscellaneous business problems that confront you from time to time, can be solved through the use of the SEARCHLIGHT SECTION of CONSTRUCTION METHODS AND EQUIPMENT. When you want to buy or sell used or surplus new Construction equipment and/or accessories, or have other business wants - advertise them in the SEARCHLIGHT SECTION for quick, profitable results!

Chrysler Corporation's FLEET OF THREE **EXECUTIVE DC-3's**

With related spare parts Available for Inspection **Immediate Delivery** LIQUIDATION PRICED

May be purchased individually

Frederick B. Ayer & Associates, Inc. 250 Park Ave., New York 17, N. Y. MUrray Hill 7-1800

Circle 262 on Reader Service Card

1953 Link Belt Model LS-85 Excavator 7A1936, operated by a Model D-318 Caterpillar diesel engine. Price—\$7,500.

1948 P. & H. Model 150 Excavator, operated by a 1955 Model 271 G.M. diesel. Price— \$2,500.

Two Mack diesel engines—Model END673— Mack Thermodyne Diesel, 175 H.P., 673 cubic inch displacement.

One with 13,925 miles, 986 hours-Price-

One with 2,587 miles, 152 hours-Price-

PETER B. GERMAN INCORPORATED Morehouse Highway Fairfield, Conecticut
Tel. EDison 5-8105

Circle 263 on Reader Service Card

SALE-STATIONARY TILTER MIXER

6 yd. Smith 3/N60802. Pneu. tilt controls. H.P. Elec. 220/440 Mtr. Used 2 yrs.—exc. o ship. wgt. 22 T.—Price \$14,000. ALSO-37 Smith 6 & 7 yd. transit mixers 3 to 7 yrs. old. With or without trucks. \$1,750 to \$8,000. Available "as-is", "tailored", or "rebuilt."

FUNKHOUSER MACHINERY CO. Kansas-City, Missouri-Phone-HA 1-4365

Circle 264 on Reader Service Card

Another good reason for Confidence in a growing America



YOUR FUTURE RIDES HIGH ON THIS CURVE!

If you're uncertain about what lies ahead, take a good look at the white line. It represents America's past production rate and economists' estimates of future production, with the peaks and valleys smoothed out. Over the long pull the curve keeps rising.

In fact, American production more than doubles every 20 years.

You can expect even faster growth during the Sixties. Because at the present rate, the \$12 billion a year we're spending on research and development may well reach \$22 billion by 1971. The outpouring of new products and processes will be in proportion. Research is the fountainhead of progress. Ready now are such innovations as foods preserved

by radiation, cleaning with sound waves, machines that can translate foreign languages, and solid radio sets without wires. And many more are on the way.

Judging by past experience, two million more businesses will be established to make and distribute our growing production during the next 25 years. Whole industries will emerge to turn out the new products that are coming from the laboratories. America has a brilliant future but to realize it fully, we must all

work together for the common good.

FREE—Write for illustrated booklet, "The Promise of America." Box 10, New York 18, N. Y.

GET READY FOR AN UPSWING!

MORE RESEARCH—We're now spending \$12 billion a year—and that's expected to double during the Sixtles!

during the Sixties!

MORE INCOME—Today's \$6500 average per family represents an all-time high!

MORE SAVINGS—Now at the highest level ever—net savings of individuals exceed \$375 billion!

MORE JOBS—Despite unemployment there are 15 million more jobs than in 1939—will be 22 million more by 1975!

MORE EDUCATION—By 1970 we'll have 20 million more high school graduates than today.

million more high school graduates than today, and 3 million more college graduates. They'll earn more, live better!

MORE LEISURE—40 million Americans get paid vacations and there are 16 million people over 65, many of them with retirement income to

MORE MARKETS—U.S. exports, plus output on U.S.-owned plants overseas, already account for over \$50 billion in sales!

MORE NEEDS—Schools, hospitals, highways, homes—we need billions in improvements right now, and the need keeps growing!



Advertisers in this month's

Construction 330 WEST 42nd STREET, NEW YORK 34



LOngacre 4-3000

| Number of copies of this issue printed 52,991 |
|---|
| main recommendation of the second |
| Aeroquip Corp. 185 Alemite Div., Stewart-Warner Corp. 14-15 Allis-Chalmers. 191, 192-193, 194-195, 194 Allison Div., General Motors Corp. 115 American Hoist & Derrick Co. 118 American Oil Co. 37, 38-39, 46-41, 42-43, 44 Atlas Powder Co. 116-117 Audic Equipment Co., Inc. 216 Austin-Western Works, (Construction Equip. Div.) Baldwin-Lima- Hamiton Corp. 68-69 |
| R |
| Barber-Greene Co. 170-171 Bekaert Steel Wire Corp. 222 Bathlehem Steel Co. 190, 297 Black & Decker Mfg. Co., The 22-23 Brockway Motor Trucks 169 Broderick & Bascom Rope Co. 2nd Cover Bucyrus-Erie Co. 172 |
| c |
| Caterpillar Tractor Co |
| Chevrolet Div., General Motors Corp. 132-133 Cities Service Oil Co. 132-133 Clark Equipment Co. (Automotive Div.) 6 (Censtruction Machinery Div.) 138-139, |
| Cleveland Trencher Co., The |
| Cleveland Trencher Co., The 146-141 Cleaver Brooks Cs. 136-137 Clevite Service Div., Clevite Corp. 58 Colorado Fuel and Iron Corp., The 187 Construction Methods & Equipment 30-31 Continental Motors Corp. 59 Curtiss-Wright Corp. (Marquette Div.) 202 |
| D |
| Bayton Sure Grip & Shore Co. 168 Delco-Remy Div., General Moters Corp. 46-47 Detecto Scales, Inc. 2895 Detroit Diesel Engine Div., General Motors Corp. 16-17, 18-19 Diamond Chain Co. 55 Dietz Co., R. E. 32 Dixon Valve & Coupling Co. 289 Donaldson Co., Inc. 163 |
| E |
| Economy Forms Corp. 209 Elmec Corp. The 151, 152-153 Englag-Bickford Co. 78 Euclid Div., General Motors 111, 112-113, 114 |
| |
| Firestone Tire & Rubber Co |
| (Ford Div.) 164-165 (Tractor & Implement Div.) 48 |
| Fram Corp. 25 Fruehauf Trailer Co. 203 |
| Firestone Tire & Rubber Co. 28 Ford Motor Co. (Pord Div.) 164-165 (Tractor & Implement Div.) 48 Fram Corp. 25 Freshaft Trailer Co. 203 Fuller Transmission Div. 26-27 |
| G C W 1 To broad a Tour |
| Gar Wood Industries, Inc. 58-59 General Electric Co. (Lamp Div.) 146 Goodail Rubber Co. 116 Goodrich Industrial Products Co., The B.F. 1 Gesdrich Tire Co., The B. F. Div., The B. F. Goodrich Co. 20-21 Goodysar Tire & Rubber Co. (Metal Products Div.) 10 Gradall—Warner & Swassy Co. 3 Gulf Oil Corp. 188-189 |
| Harnischfeger Corp |
| Harnischfeger Corp. 148-149 Heede, Inc., B. M. 212 Heller & Co., Walter E. 218 Metherington & Regner, Inc. 154 |

| | | | | - 112 |
|--|---------|----------|----------|-----------|
| Homelite Div., Te Hough Co., The I Huber-Waree Co. | ztron l | ine | | . 158-159 |
| Huber-Wares Co. | | | ******* | 176 |
| | | | | |
| Ingersoll-Rand C | | | | 29 177 |
| Ingersoll-Rand C International Hai (Construction I Div.) (Industrial Tra (Motor Truck Iowa Manufactur | vester | Co. | | 20, 110 |
| Div.) | darha | | 178-179, | 180-181 |
| (Motor Truck | Div.) | | 3r | d Cover |
| lowa Manufactur | ing Co | h | ***** | 62-63 |
| | 3 | | | |
| Jackson Vibrator Jacger Machine C Johns-Manville . | s Inc. | | | 175 |
| Jaeger Machine C Johns-Manville | O | | | 24, 87 |
| | | | | |
| | K | | | |
| Katolight Corp. Keasbey & Mattis Kochring Div., B Kohler Co. Kolman Manufact | on Co. | | | 35, 36 |
| Kochring Div., K | ochrin | g Co. | | 135 |
| Kolman Manufact | uring | Co | | 211 |
| | | | | |
| LaCrosse Trailer | Corn. | | | 177 |
| LaCrosse Trailer LeRoi Div., Westi LeTourneau-West Lipe-Rollway Cor | nghou | e Air | Brake C | 0 145 |
| Lipe-Rollway Cor | D | se Co. | | 224 |
| | | | | |
| Mach Tomaka In | М | | | |
| Macwhyte Wire | Rope (| Co | ****** | .220-221 |
| Marion Power Sh McGowan Pumps | Div. 1 | evman | Mfr. C | orp. 166 |
| Mobil Oil Co. Di | vii co | Inc | | E9 E9 |
| Mack Trucks, Ind Macwhyte Wire Marien Power Sh McGowan Pumps Mobil Oil Co. Di Secony Mobil (Moretrench Corpo | ration | Ine. | ******* | 33 |
| | ** | | | |
| Neenah Foundry Northwest Engine | Co | | | 197 |
| Northwest Engine | ering | Ce | | 7 |
| | | | | |
| Onan & Sons. In | e. D. | w. | | 51 |
| Onan & Sons, In Owen Bucket Co. | . The | | | 51 |
| | p | | | |
| Porter Co., Inc., | н. к. | | | |
| Porter Co., Inc., (Leschen Wire Preco, Inc. | Rope | Div.) | ****** | 216 |
| reco, me | | | | 155 |
| | R | | | |
| Ramset—Winches Olin Mathieson Raybestos-Manhat (Manhattan Ru Reo Div., White Richmond Screw Rockwell-Standar, (Transmission Rollway Bearing | Chem | stern l | Div., | 199 |
| Raybestos-Manhat | tan, I | nc. | ap | |
| Reo Div., White | Motor | Corp. | | 77 |
| Richmond Screw Rockwell-Standar | Ancho: | Co., 1 | ne | 214 |
| (Transmission Rollway Bearing | & Axle | Div.) | | 67 |
| aronney bearing | 4 | | | |
| | 8 | | | |
| Sauerman Bros., Schwartz Manufe | Inc | Co. | | 206 |
| Seaman-Gunnison | Div., | | | 000 |
| Shell Oil Co | ation | | | 131 |
| Sheppard Co., In Simplex Industria | c., R. | ns, Inc. | | 205 |
| Smith Engineerin | g Wor | nc. | ****** | 160 |
| Standard Oil Co. | (Calif | ornia) | | 64 |
| Stewart-Warner | Corp. | (Alemi | e Div.) | . 14-15 |
| Stoody Company Superior Concrete | Acce | soorles, | Inc. | 60 |
| Sauerman Bros., Schwartz Manufe Seaman-Gunnison Seaman Corpor Sheppard Co., In Simplex Industria Smith Engineerin Sprague & Henw Standard Oil Co. Stang Corp., Joh Stewart-Warner Stoody Company Superior Concrete Symons Clamp & | Mfg. | Со | | 2 |
| | | | | |
| Texace, Inc Thew Shovel Co. | | | ***** | 8-9 |
| | | | | |

| Timken Roller Bear Travelers Insurance Travelift Div., Drot True Gun-All Div., | ing Co 4th Cover Companies, The 75 t Mfg. Co 215 |
|--|--|
| Detroit Tool Engi | insering Co 211 |
| | U |
| Union Fork & Hoe United Motors Serv General Motors C Universal Form Cla | Co |
| | w |
| Warner & Swasey Watertown Div., Ne White Manufacturin White Truck Div., Worthington Corp. | Co.—Gradall 3 w York Air Brake Co. 13 ig Co. 57 Vhite Motor Co. 157 49 |
| | Y |
| Yale & Towne Mfg. | Co. (Trojan Div.) 213 |
| | • |
| F. J. Eberle, | D ADVERTISING , Business Manager (lew) |
| F. J. Eberle, Equipment (Used or Surplus N | Business Manager |
| F. J. Eberle, | Business Manager (ew) 225 |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK | , Business Manager (ew) |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 500 Fifth Ave., New | Business Manager (225 ITATIVES L. S. KELLY York 2, N. Y. |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 500 Fifth Ave., New PHILA. H. | Business Manager (cw) |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 OF fifth Ave., New PHILA. LOcust 8-4330 | (tatives L. S. KELLY York 2, N. Y. THOMAS McCARREN |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 500 Fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat | (tatives L. S. KELLY York 2, N. Y. THOMAS McCARREN |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 SOO Fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat ATLANTA (Atlanta) 875-0523 | Eusiness Manager (225) L. S. KELLY York 2, N. Y. THOMAS McGARREN za, Phila. 3, Pa. M. H. MILLER |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 500 Fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat ATLANTA (Atlanta) 875-0523 1375 Peachtree St., CLEVEL AND | Business Manager (200) 225 ITATIVES L. S. KELLY York 2, N. Y. THOMAS McCARREN Ta, Phila. 3, Pa. M. H. MILLER N.E., Atlanta 9, Ga. W. E. DONNELL |
| F. J. Eberle, Equipment (Used or Surplus Normal States REPRESEN NEW YORK OXford 5-5759 500 Fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat ATLANTA (Atlanta) 875-0523 1375 Peachtree St., CLEYELAND SUperior 1-7000 | Business Manager (2ew) |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 OF fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat ATLANTA (Atlanta) 875-0523 1375 Peachtree St., CLEVELAND SUperior 1-7000 55 Public Square, C CHICAGO EXPERIMENT | ITATIVES L. S. KELLY York 2, N. Y. THOMAS McCARREN za, Phila. 3, Pa. M. H. MILLER N.E., Atlanta 9, Ga. W. E. DONNELL leve. 13, Ohio |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 500 Fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat ATLANTA (Atlanta) 875-0523 1375 Peachtree St., CLEVELAND SUperior 1-7000 55 Public Square, C CHICAGO MOhawk 4-5800 | TATIVES L. S. KELLY York 2, N. Y. THOMAS McCARREN za, Phila. 3, Pa. M. H. MILLER N.E., Atlanta 9, Ga. W. E. DONNELL leve. 13, Ohio EDWARD L. WILANDER MELYIN B. NYLUND GEORGE K. SMITH |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 500 Fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat ATLANTA (Atlanta) 875-0523 1375 Peachtree St., CLEVELAND SUperior 1-7000 55 Public Square, C CHICAGO MOhawk 4-5800 | Eusiness Manager (200) 225 L. S. KELLY York 2, N. Y. THOMAS McCARREN za, Phila. 3, Pa. M. H. MILLER N.E., Atlanta 9, Ga. W. E. DONNELL leve. 13, Ohio EDWARD L. WILANDER MELYIN B. NYLUND GEORGE K. SMITH Ave., Chicago 11, III. |
| F. J. Eberle, Equipment (Used or Surplus North Colored or North Colo | Business Manager (New) |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 500 Fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat ATLANTA (Atlanta) 875-0523 1375 Peachtree St., CLEVELAND SUperior 1-7000 55 Public Square, C CHICAGO MOhawk 4-5800 645 N. Michigan A DALLAS Riverside 2-8802 | Business Manager (200) 225 L. S. KELLY York 2, N. Y. THOMAS McCARREN za, Phila. 3, Pa. M. H. MILLER N.E., Atlanta 9, Ga. W. E. DONNELL leve. 13, Ohio EDWARD L. WILANDER MELVIN B. NYLUND GEORGE K. SMITH Avo., Chicago II, III. GORDON JONES JAMES R. PIERCE JOHN GRANT |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 500 Fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat ATLANTA (Atlanta) 875-0523 1375 Peachtree St., CLEVELAND SUperior 1-7000 55 Public Square, C CHICAGO MOhawk 4-5800 645 N. Michigan A DALLAS Riverside 2-8802 1712, The Vaughn B | Business Manager (200) 225 L. S. KELLY York 2, N. Y. THOMAS McCARREN za, Phila. 3, Pa. M. H. MILLER N.E., Atlanta 9, Ga. W. E. DONNELL leve. 13, Ohio EDWARD L. WILANDER MELVIN B. NYLUND GEORGE K. SMITH Avo., Chicago II, III. GORDON JONES JAMES R. PIERCE JOHN GRANT |
| F. J. Eberle, Equipment (Used or Surplus N For Sale SALES REPRESEN NEW YORK OXford 5-5959 500 Fifth Ave., New PHILA. LOcust 8-4330 Six Penn Center Plat ATLANTA (Atlanta) 875-0523 1375 Peachtree St., CLEVELAND SUperior 1-7000 55 Public Square, C CHICAGO MOhawk 4-5800 645 N. Michigan A DALLAS Riverside 2-8802 | Business Manager (200) 225 L. S. KELLY York 2, N. Y. THOMAS McCARREN za, Phila. 3, Pa. M. H. MILLER N.E., Atlanta 9, Ga. W. E. DONNELL leve. 13, Ohio EDWARD L. WILANDER MELVIN B. NYLUND GEORGE K. SMITH Avo., Chicago II, III. GORDON JONES JAMES R. PIERCE JOHN GRANT |

| CApital 3-5118 |
|--|
| Pacific Bldg., Yamhill St., Portland 4, Ore. |
| SAN FRANCISCO J. W. OTTERSON |
| Ouglas 2-4600 ROBERT T. KOCH |
| 255 California St., San Francisco II, Calif |
| Jnited Kingdom: EDWARD E. SCHIRME |
| McGraw-Hill Publishing Co., Ltd. |
| 14 Dover St., London, W. I, England |
| Sermany, Austria: STAN KIME |
| McGraw-Hill Publishing Co., Inc., 85, |
| Westendstresse, Frankfurt/Main, Germany |
| |

| | MICHAEL R. ZEYN |
|--|-----------------|
| France and Belgium: | |
| McGraw-Hill Publish | |
| du Port, Geneva, Swi | Tzerland |
| Other Sales Offices: | |
| Boston 16: Copley So | |
| Cincinnati 2, Carew | |
| St. Louis 8, Continent Pittsburgh 22: Four | |

J. L. RICE

NOEL HUMPHREY

GENE HOLLAND

SCOTT HUBBARD

Methods Memo ...



Twin-Engine Scraper Undergoes Tests

At a meeting of their dealers last month, Allis-Chalmers unveiled an experimental twin-engine scraper with a heaped capacity of 40 yd. A Georgia contractor currently is putting the unit through its paces on a highway job near Atlanta. It will not appear on the market until June, says Allis-Chalmers.

Powered by a 340-hp A-C diesel engine at each end, the scraper has a top speed of 30 mph. The hydraulically controlled rig weighs 96,000 lb and measures 52 ft long, 12½ ft high and 12¾ ft wide.

A Russian Tragedy

A landslide killed 145 persons and injured 143 others on a construction project near Kiev, according to a Soviet newspaper that accused those in charge of the job of negligence.

Wind-swept storm water evidently undermined the slope of a ravine that was being filled in with river silt. The slide wiped out 22 houses, 17 municipal buildings, two workers' barracks, a train depot, and an experimental construction plant. The Soviets don't recognize acts of God, so somebody will pay dearly for the "mistake."

Specs Give Bidders Free Hand

Dimensional tolerance is just about the only restriction set by Air Force specs for Phase 1 construction of an under-mountain headquarters for the North American Air Defense Command in Colorado. Otherwise, contractors bidding on the job have a free hand in choosing methods.

The job calls for boring a 1-mi-long horseshoe-shaped tunnel into a mountain and carving out three chambers. Each 45x56-ft chamber will be 320 ft long. The Corps of Engineers looked for some unconventional methods when they opened bids.

Joint-venture architects-engineers Parsons, Brinkerhoff, Quade & Douglas of New York and A. J. Ryan Associates of Denver drew up the plans.

Sewage Treatment Boom Looms

Contractors can look for an increase in the number of sewage treatment plants put under contract in the immediate future. A survey released by the Conference of State Sanitary Engineers discloses that the United States needs some 5,200 new plants or additions to serve 42,000,000 people. Cost of the required projects is estimated at \$2 billion.

A total of 2,632 projects costing about \$1.3-billion already have been approved since passage of the Federal Water Pollution Control Act of 1956. The Federal government has granted \$216-million toward the total cost of these projects. The Public Health Service now estimates, on the basis of the new survey, that additional projects will mean a 40% boost in construction of treatment plants.

Big Bond Covers Missile Base Job

Two insurance companies have teamed up to cover the contractors on the nation's first Minuteman base with the largest performance bond ever written in this country. Its exact amount is \$61,773,644, the same as the contract.

George A. Fuller Co. of New York and Del E. Webb Corp. of Phoenix, Ariz., are building the missile base at Malstrom Air Force Base in Montana. Aetna Casualty and Surety Co. is handling the major portion of the bond and representing Fuller. The remainder is being handled by Maryland Casualty Co., representing Webb.

The Case of the Missing Bill

Lost: somewhere between the assembly chambers and the governor's desk, an Indiana road bill providing for a \$24-million Indianapolis highway. Finder will receive no reward because it's too late to do any good. The legislature has adjourned and the bill-signing deadline has passed. Unsigned, the bill cannot become law.

There will be a 2-yr wait before a new bill can be submitted to the legislature.

The Boys in the Back Room

There are no drinks at the bar now, but construction men at work on an apartment building in mid-town Manhattan are eating their lunch in an old speakeasy. Senville Construction Co. uncovered the cavelike remnant of Prohibition days while excavating under sidewalks adjacent to the site.

Workmen have made the old hangout a respectable joint, using it as a locker room where they change clothes, eat lunch and store personal belongings. But its days are numbered. The contractor will obliterate it when they backfill behind a new retaining wall.



Construction Methods EQUIPMENT

Methods AND READER SERVICE HELPS YOU

- ...GET MORE INFORMATION about new products and services advertis described editorially. Information is FREE. Postage paid. Just circle to number on the Reader Service Card and drop in the mail.
- ... ENTER YOUR NEW SUBSCRIPTION Simply fill out subscription card a and get your own personal copy each month. We'll bill you later.
- ...SEND FOR REPRINTS—Editorial reprints described below are available. circle the number corresponding to the reprint you want. You will be along with your order. Quantity prices furnished on request.

NEW THIS MONTH

R20 EARTH COMPACTION ... 504

A 32-page booklet telling how to achieve better results at less cost when compacting all types of fills and embankments. It shows how to compact various soils most efficiently, what types of machines to use to do the job best and how they should be operated on the fill. Included are a "quick soil-typing guide," a glossary, tables showing what compactors to use under various conditions, and a listing of 49 state highway departments' fill-compaction requirements (densities, lift thicknesses, equipment.)

CONCRETE MIXING AND PLACING ... 50¢

An 88-page booklet containing a series of articles on the fundamental principles of concreting for all types of structures. Subjects include: concreting equipment selection, application, and maintenance; production factors; form planning, design, and construction; design and control of concrete mixes; handling and placing concrete; underwater concreting.

PRESTRESSED CONCRETE ... 50c

R5 A 20-page special report dealing with a variety of prestressing applications; commercial prestress – new market for contractors; pre-tensioning bed—assembly line for prestress products.

EQUIPMENT MAINTENANCE GUIDE . . . 50¢

R6 A 36-page booklet in which 15 service experts detail the proper maintenance of crawler tractors, graders, scrapers, rollers, compressors, trenchers, crushers, trucks, cranes, asphalt plants, loaders, air tools, pavers, rock drills, wheel tractors.

DOES YOUR INSURANCE PROGRAM REALLY PROTECT

R8 A 12-page booklet by a construction insurexplains the importance of a sound prograstrengthen liability coverage...how to protect and your property. Included is a check list for contractors.

SURETY BONDS ... Their Function, Value and Effect ...

R9 An 8-page article discusses the differences be and insurance coverages, tells how surety ri uated, and describes various types of surety

BLASTING AGENT SLASHES POWDER COSTS BY 75%

R10 This editorial reprint deals with a blasting ag powder costs to 4.5 cents per yd of rock.

R19 PROFITABLE FIELD LUBRICATION PRACTICES . . . 5

Contractors' practices and mobile lubrication are covered in a 16-page booklet that also simplified lubrication program and the operaquipment maintenance company and of a recontractor.

| sue | \Rightarrow | |
|-----|---------------|--|
| | | |
| | | |

vertised or cle the key

ard at right

ble. Simply

| NAME | | 77 / 177 / 177 | TI | TLE | |
|----------|-------------|-----------------|-----------------|--------------------------|---------------------------|
| COMPANY | Toloria a a | | | TOTAL UNITS OF EQUIPMENT | TOTAL No. |
| ADDRESS | | | | | |
| ORDER | | | | | |
| REPRINTS | ☐ INSIDI | E FRONT COVER | | INSIDE BACK COVER | BACK COVER |
| HERE | | | | | |
| R1 R26 | 1 26 51 | 76 101 126 151 | 176 201 226 251 | 276 301 326 351 37 | 6 401 426 451 476 501 526 |
| R2 R27 | 2 27 52 | | | | 7 402 427 452 477 502 527 |
| R3 R28 | 3 28 53 | | | | 8 403 428 453 478 503 528 |
| R4 R29 | 4 29 54 | 79 104 129 154 | 179 204 229 254 | 279 304 329 354 37 | 9 404 429 454 479 504 529 |
| R5 R30 | 5 30 55 | | | | 0 405 430 455 480 505 530 |
| R6 R31 | 6 31 56 | | | | 1 406 431 456 481 506 531 |
| R7 R32 | 7 32 57 | | | | 2 407 432 457 482 507 532 |
| R8 R33 | 8 33 58 | | | | 3 408 433 458 483 508 533 |
| R9 R34 | 9 34 59 | | | | 4 409 434 459 484 509 534 |
| R10 R35 | 10 35 60 | | | | 5 410 435 460 485 510 535 |
| R11 R36 | 11 36 61 | | | | 6 411 436 461 486 511 536 |
| R12 R37 | 12 37 62 | | | | 7 412 437 462 487 512 537 |
| R13 R38 | 13 38 63 | | | | 8 413 438 463 488 513 538 |
| R14 R39 | 14 39 64 | | | | 9 414 439 464 489 514 539 |
| R15 R40 | 15 40 65 | | | | 0 415 440 465 490 515 540 |
| R16 R41 | 16 41 66 | | | | 1 416 441 466 491 516 541 |
| R17 R42 | 17 42 67 | | | | 2 417 442 467 492 517 542 |
| R18 R43 | 18 43 68 | | | | 3 418 443 468 493 518 543 |
| R19 R44 | 19 44 69 | | | | 4 419 444 469 494 519 544 |
| R20 R45 | 20 45 70 | | | | 5 420 445 470 495 520 545 |
| R21 R46 | 21 46 71 | | | | 6 421 446 471 496 521 546 |
| R22 R47 | 22 47 72 | | | | 7 422 447 472 497 522 547 |
| R23 R48 | 23 48 73 | | | | 8 423 448 473 498 523 548 |
| R24 R49 | 24 49 74 | | | | 9 424 449 474 499 524 549 |
| R25 R50 | 25 50 75 | 100 125 150 175 | 200 225 250 275 | 300 325 350 375 40 | 0 425 450 475 500 525 550 |
| 5/61 | THIS CA | PO VOID AFTER | HILY 31 196 | . BE SURE TO FILL | IN YOUR NAME ABOVE |

Build Your Own Library of Money-Making Shortcuts

SUBSCRIBE NOW AT THIS LOW RATE!

Enter my new subscription to Construction Methods, and bill me at the money-saving rate of only \$4 for 3 full years. (I save \$2.)

Check
if you wish 1 year for

| NAME | | | E OR | |
|--------------------|--|----------------------|--|-----------------------|
| NAME | All s | paces must be filled | d in to start service | |
| ADDRESS OF | ne | | | |
| ADDRESS OF | ice | | | |
| | | | | |
| CITY | | ZONE # | STATE | S- |
| | | | | 2- |
| COMPANY | | | | |
| COMPACT | (If self-em | ployed, write "SEL | F" above) | |
| | | | | |
| NATURE OF BUS | | - short trans | Building Highways | U- |
| | | | Both building and non-bu | |
| | | | | |
| | | outside U.S.A. | (T) 1 | waar \$15 |
| Canada - 1 ye | ar \$4 ars \$8 | year \$10 | Other Foreign | year \$13 |
| _ 3 ye | ars \$8 | J years \$20 | 3 | years \$30 |
| | | | | |
| | | | | |
| NAME | | TITL | E | |
| | | | TOTAL UNITS | TOTAL No. |
| COMPANY | | | OF EQUIPMENT | TRUCKS |
| ADDRESS_ | | | | |
| ORDER | | | | |
| REPRINTS | INSIDE FRONT COVER | □ IN | ISIDE BACK COVER | BACK COVE |
| HERE R1 R26 | 1 26 51 76 101 126 151 | 176 201 226 251 | 276 301 326 351 376 4 | 01 426 451 476 501 57 |
| R2 R27 | 2 27 52 77 102 127 152 | | | |
| R3 R28 | 3 28 53 78 103 128 153 | 178 203 228 253 | 278 303 328 353 378 4 | 03 428 453 478 503 52 |
| R4 R29 | 4 29 54 79 104 129 154 | | | |
| R5 R30 | | | 280 305 330 355 380 4 | |
| R6 R31 | 6 31 56 81 106 131 156 | | 282 307 332 357 382 4 | |
| R7 R32 R0 R33 | | | 283 308 333 358 383 4 | |
| R9 R34 | | | 284 309 334 359 384 4 | |
| R10 R35 | 10 35 60 85 110 135 160 | 185 210 235 260 | 285 310 335 360 385 4 | 0 435 460 485 510 53 |
| R11 R36 | 11 36 61 86 111 136 161 | 186 211 236 261 | 286 311 336 361 386 4 | 11 436 461 486 511 53 |
| R12 R37 | | | 287 312 337 362 387 4 | |
| R13 R38 | | | 288 313 338 363 388 4 | |
| R14 R39 | | | 289 314 339 364 389 4 | |
| R15 R40 | 15 40 65 90 115 140 165 | | | |
| R16 R41 | | | 291 316 341 366 391 4 292 317 342 367 392 4 | |
| R17 R42 R18 R43 | 17 42 67 92 117 142 167 18 43 68 93 118 143 168 | | | |
| R19 R44 | 19 44 69 94 119 144 169 | 194 219 244 269 | 294 319 344 369 394 4 | 9 444 469 494 519 54 |
| R20 R45 | 20 45 70 95 120 145 170 | | | |
| R21 R46 | 21 46 71 96 121 146 171 | 196 221 246 271 | 296 321 346 371 396 4 | 11 446 471 496 521 54 |
| R22 R47 | 22 47 72 97 122 147 172 | 197 222 247 272 | 297 322 347 372 397 4 | 22 447 472 497 522 54 |
| R23 R48 | 23 48 73 98 123 148 173 | 198 223 248 273 | 298 323 348 373 398 4 | 23 448 473 498 523 54 |
| R24 R49 | 24 49 74 99 124 149 174 | 199 224 249 274 | 299 324 349 374 399 4 | 14 449 474 499 524 54 |
| R25 R50 | 25 50 75 100 125 150 175 | 000 000 000 000 | 200 200 200 220 400 4 | |

insurance expert rogram...how to protect your job list of insurance

es between bonds by risks are evalarety bonds.

5% ...15¢
ng agent that cuts

...50€

ation equipment also describes a operations of an f a maintenance

ck of this card

FIRST CLASS
PERMIT NO. 64
(Sec. 34.9 P.L.&R.)
NEW YORK, N. Y.

Con

BUSINESS REPLY MAIL

No Postage Stamp Necessary If Mailed In The United States

postage will be paid by

Construction Methods

A McGraw-Hill Publication 330 West 42nd Street New York 36, New York

READER SERVICE DEPT. 28th FLOOR



FIRST CLASS

PERMIT NO. 64 (Sec. 34.9 P.L.&R.) NEW YORK, N.Y.

BUSINESS REPLY MAIL

No Postage Stamp Necessary If Mailed In The United States

postage will be paid by

Construction Methods

A McGraw-Hill Publication 330 West 42nd Street New York 36, New York



FIRST CLASS

PERMIT NO. 64 (Sec. 34.9 P.L.&R.) NEW YORK, N. Y.

BUSINESS REPLY MAIL

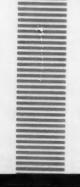
No Postage Stamp Necessary If Mailed In The United States

postage will be paid by

Construction Methods

A McGraw-Hill Publication 330 West 42nd Street New York 36, New York

READER SERVICE DEPT. 28th FLOOR



CRAWLER T

with gives draw

SELF-PROPE

R12 Structurange move ating and v

TRACTOR-DI

R13 Char cludi 43 so yd b

STEEL ROLL

R14 Tand at le manu train pacti

> Cons Mei

Instruction lethods EQUIPMENT

ethods AND READER SERVICE continued

... SEND FOR REPRINTS (while they last)

Use the postcards at the left to make your selection of the editorial reprints you want. Be sure to circle key number corresponding to reprint you want and fill in address blanks before mailing the postpaid reply card. Pay when you are billed. Quantity prices furnished on request.

COMPARATIVE SPECIFICATION CHARTS

LER TRACTORS ... 10¢

List covers 9 manufacturers and 45 models of tractors with horsepower ratings from 30 to 425. Other data gives dimensions, speeds, engine description, and drawbar pull.

ROPELLED SCRAPERS ... 10¢

Struck capacities of the 44 models listed on this chart range from 5 to 45 cu yd. Information on the prime mover includes data on engine, transmission, and operating speeds. Other data gives over-all dimensions and weight distribution. Chart covers 11 manufacturers.

OR-DRAWN SCRAPERS . . . 10¢

Chart gives overall dimensions and general data including weight distribution and type of controls for 43 scrapers with struck capacities from 2½ to 54 cu yd built by 9 manufacturers.

ROLLERS . . . 10¢

Tandem and three-wheel rollers with a dry weight of at least 6,000 lb are listed in this chart covering 12 manufacturers and 78 models. Data covers power trains, over-all and roll dimensions, weights, and compaction.

PNEUMATIC-TIRED ROLLERS ... 10¢

R15 Compaction figures for 35 models of rollers are given in this chart covering 12 manufacturers. Other information covers weights, overall dimensions, wheels, and power train.

MOTOR GRADERS ... 10¢

R16 Information on weights, dimensions, engines, and travel speeds in this chart covers 59 models of graders built by 7 manufacturers. Also included are data on blades and blade controls and scarifiers. Each 10¢

PORTABLE COMPRESSORS ... 10 c

R17 List includes 19 manufacturers with 48 models of rotary and reciprocating portable compressors delivering 100 cfm at 100 psi or more. Information includes dimensions and mechanical data on compressors and engines.

TRACTOR SHOVELS ... 10¢

R18 Integrally built tractor shovels are available in 93 models by 18 manufacturers. Chart includes both crawler and wheel-mounted units with bucket capacities ranging from ½ to 6 cu yd. Other information covers engines and power trains, maximum speeds, and over-all dimensions.

There is no charge for CONSTRUCTION METHODS and EQUIPMENT's Reader Service except for subscriptions and reprints.







Pick up bulky objects no other loader could handle. The Fourin-One operator can install culvert single-handed, including digging, laying pipe, and backfilling.



Grade road shoulders with bucket in bulldozer position. Exclusive Skid-Shoes on bottom of moldboard help the operator to hold grade with amazing accuracy.

T-340 Four-in-One handles jobs other 3/4-yard rigs can't touch

Now you can cut costs on scores of small scattered jobs—jobs that take the part-time use of several types of single-purpose equipment, or are simply "let go" because it costs too much to handle them with larger, more costly power. Now, you can handle them all with an International Drott T-340 or TD-340 Four-in-One. Only the Four-in-One gives you the actions of bucket, bulldozer, scraper, and clamshell, all in one machine.

Nothing else available today will do so much for such a small investment as the 47-hp* T-340 or TD-340 Four-in-One. Contractors, cities, counties—a host of users—call it "terrific." Exclusive pryaction gives the bucket 11,200 pounds of breakout force; clamshell action lets you pick up and load odd-shaped objects no other front-end loader can handle. Or, instantly at the touch on a hydraulic control, you can be doing fine grading, or a mansize dozing job. With optional Fast-Reverser, you get five reverse speeds, each 22½ per cent faster than the forward speed, to hustle up shuttle-type jobs.

Your IH Dealer will be glad to demonstrate—why not call him today?

*Maximum engine hp at standard conditions.

International Harvester Co., Chicago 1, Illinois

Drott Manufacturing Corp., Milwaukee 15, Wisconsin

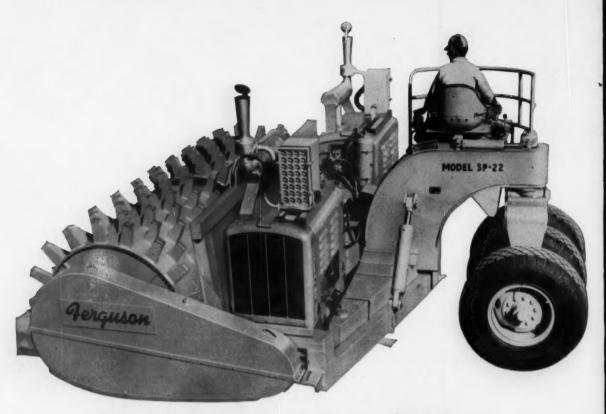


Backdrag with front half of bucket to clean ditches, trim slopes, or fine-grade for seeding. By moving backward, the T-340 erases its own track marks.



Open bucket slightly and "shave" the earth as little as a fraction of an inch, if you desire. No other loader can match the T-340 Four-in-One for precision grading.





Why Ferguson put Timken bearings on this giant new roller

When the hundreds of feet on the drums of this new Ferguson SP-22 tamping roller run over ground, it's like hitting the earth thousands of times a minute. To take the thousands of shocks, Shovel Supply Co., the roller builder, specified Timken® tapered roller bearings for the drums, wheels and steering kingpin.

Their tapered design lets Timken bearings take any

combination of radial and thrust loads. Full-line contact between rollers and races gives Timken bearings extra load-carrying capacity. When the roller runs or turns on level or uneven ground, Timken bearings take the shocks from any direction. And precision manufacture assures bearing accuracy to give long trouble-free, practically friction-free life with minimum maintenance.



EXTRA SAVINGS are yours when you use the services of Timken Company graduate sales engineers. Working with you at the design stage, they can often solve bearing problems on-the-spot.



The Timken Roller Bearing Company, Canton 6, Ohio. Cable: "TIMROSCO". Makers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits. Canadian Division: Canadian Timken, St. Thomas, Ontario.

